

Canadian Foundation for Dietetic Research Dietetic Research Event – June 14-15, 2012

Welcome to Toronto! On behalf of the Canadian Foundation for Dietetic Research, it is my great pleasure to welcome you to the 2012 Dietitians of Canada Annual Conference Research Event. This preeminent event represents the breath and depth of dietetic research in Canada.

This year we had a record-breaking number of almost 100 abstract submissions! This exemplifies the strong and significant role dietitians are playing in the research community to support all areas of dietetic practice. To date, we already have over 950 delegates attending the conference with 36 oral presentations and over 50 research posters. The abstracts cover topics including clinical nutrition, community-based nutritional care, nutrition needs of vulnerable groups, wellness and public health, dietetic practice and education, and food safety and policy. The broad spectrum of topics is one of the exciting aspects of our profession. This will surely be a great opportunity to reacquaint yourself with old friends and to meet new colleagues through your common research interests and practice. I wish to acknowledge and congratulate all the presenters and co-authors for all their hard work and for sharing their research.

New to this year's event will be the electronic poster sessions, which is based on the popular Poster Tours from previous years. Each presenter will speak about the highlights of his/her research while the presenter's poster is projected on to a large LCD screen.

On behalf of the membership of Dietitians of Canada, I would like to thank the Abstracts Review Committee members who took time out of their busy schedules to volunteer their expertise in reviewing the abstracts. Our Abstracts Review Committee represented a broad spectrum of dietetic expertise and professional practice. I wish to thank them for their tremendous effort and contribution. Thank you to: Beth Armour from PEN of Dietitians of Canada, Dr. Pauline Darling from St. Michael's Hospital and the University of Toronto, Dr. Alison Duncan from the University of Guelph, Mahsa Jessri from the University of Alberta, Christine Mehling from EatRight Ontario, and Dawna Royall from the Canadian Journal of Dietetic Practice and Research. I would also like to acknowledge the following individuals who will assist with moderating the oral and poster sessions in conjunction with the Committee members. Thank you to: Barb Anderson, Isla Horvath, Jane Thirsk, and Pat Vanderkooy. A special thank you also goes to Isla Horvath from the Canadian Foundation for Dietetic Research and Diana Sheh from Dietitians of Canada in supporting the Committee in the abstracts review process.

Finally, I would like to acknowledge the Canadian Foundation for Dietetic Research and Dietitians of Canada for their ongoing support of research in dietetics and nutrition in Canada and for their mission to foster and support new researchers and dietetic interns in this important area of practice. Please join me in celebrating this exciting event and the research of your fellow colleagues!

Dr. Julia MW Wong
Children's Hospital Boston and St. Michael's Hospital
Abstracts Review Committee Chair, 2012

Canadian Foundation for Dietetic Research
Dietetic Research Event – June 14-15, 2012

These abstracts represent research projects of dietitians that were accepted through a peer-review process for presentation.

*Indicates the presenter [R] = Research abstract [E] = Experience-sharing abstract

e-POSTER RESEARCH PRESENTATION ABSTRACTS

THURSDAY JUNE 14 , 2012

CLINICAL RESEARCH, INCLUDING OUTCOMES OF INTERVENTION

Nutritional assessment following stroke: what is used clinically? Preliminary results from a Canadian survey of registered dietitians

*L Peters^{*1}, C Gobert¹, J Giroux¹, R Teasel², N Foley². ¹Division of Food & Nutritional Sciences; Brescia University College, Western University, London, Ontario, ²Aging, Rehabilitation and Geriatric Care Program, Lawson Health Research Institute, Parkwood Hospital site, London, Ontario. [R]*

Objectives; To determine i) if registered dietitians (RDs) are using tools with established validity and reliability to assess the nutritional status of patients admitted to hospital following acute stroke, and ii) if not, what assessment methods are used. **Methods;** Canadian healthcare institutions admitting high volumes (≥ 100 /year in the years 2008-2009) of acute stroke patients were included. RDs at these sites were then contacted and invited to participate in an online survey. **Results;** 124 high-volume stroke centres were identified by the Canadian Stroke Network. To date, 85 RDs have completed the survey. Stroke accounted for an average of 30% of their caseload. Twenty-nine respondents (34.1%) specified that they used an assessment method with known validity/reliability (Subjective Global Assessment and/or Mini Nutritional Assessment); however, only 11 respondents (12.9%) reported using the original (non-modified) version of the tool. Of the 51 RDs who did not use a previously validated method, their nutritional assessments were based on subjective weightings using diet history, biochemical and/or anthropometric data. Sixty-four RDs (78%) indicated they thought it was important to use a validated tool. **Implications & Conclusions;** Despite being identified as important by RDs, the preliminary results of this national survey suggest that assessment of nutritional status of patients following acute stroke is conducted using non-validated tools.

Evaluation of vitamin D levels in adult HIV positive outpatients in Toronto during fall and winter

*S De Maio^{*1}, S Herd², J Prehogan², G Arbess³, K Gough³, PB Darling^{2,4}. ¹Inner City Health and Specialized Complex Care Programs, ²Li Ka Shing Knowledge Institute of St. Michael's Hospital, Departments of ⁴Nutritional Sciences and ³Medicine, University of Toronto, Ontario [R].*

Bone health complications due to HIV infection and anti-retroviral therapy have become growing issues in HIV-infected patients. Vitamin D deficiency is a risk factor for bone disease, and data on the prevalence of Vitamin D deficiency in the HIV population is lacking in Canada. **Objectives:** To determine the prevalence of vitamin D deficiency and associated demographic, clinical and lifestyle risk factors in HIV-infected patients attending the Positive Care Clinic (PCC). **Methods:** This study was a retrospective, cross-sectional chart review of HIV-infected patients (n=128), ages 18-65 years, who attended the PCC between September 2009 and March 2010 and had their serum 25-hydroxy vitamin D (25(OH)D)

analyzed. Patients who were pregnant or receiving hemodialysis were excluded. 25(OH)D level < 75 nmol/L was considered to be insufficient and serum 25(OH)D < 25nmol/L was considered deficient. Associations between secondary variables and vitamin D status were analyzed, and predictors were included in multivariate logistic regression. **Results:** The prevalence of vitamin D insufficiency and vitamin D deficiency were 78.9% and 16.4%, respectively. Non-Caucasian skin color (OR: 3.467, P=0.022) and not taking a vitamin supplement (OR: 7.764, p<0.001) were independent risk factors for vitamin D insufficiency. **Conclusions:** This study confirms the high prevalence of vitamin D deficiency among HIV-infected patients attending an urban Toronto outpatient clinic and suggests that those who are non-Caucasian or not taking a vitamin supplement are more likely to have low vitamin D status. Further study is needed to determine the effects of vitamin D supplementation.

Functional food awareness and perceptions in relation to information sources in older adults

*MN Vella¹, LM Stratton¹, J Sheeshka² AM Duncan^{*1}. ¹Department of Human Health and Nutritional Sciences, ²Department of Family Relations and Applied Nutrition, University of Guelph, Guelph, Ontario. [R].*

Objectives: The functional food industry has experienced innovative and economic expansion, yet research into consumer awareness and perceptions of functional foods and their associated health claims is limited. Older adults are particularly under-researched in this respect, and could benefit from incorporation of functional foods into their diets due to age-related issues pertaining to food and health. The purpose of this research was to identify perceived need for information related to functional foods among older adults (≥ 60 years old), and to assess awareness and perceptions of health claims on functional food packages. **Methods:** Community-dwelling older adults (n=200) completed a researcher-administered questionnaire about functional foods including current consumption, motivating factors, perceived need for information and awareness of health claims. **Results:** Prevalence of functional food consumption was 93.0%. An increased awareness and knowledge was the most frequently reported factor that would promote functional food consumption (85.5%). Related to this, 63.5% of participants indicated that they needed more information about functional foods with preferred sources being newspapers/magazines/books (68.5%) and food labels (66.1%). When asked about health claims on functional food packages, 93.5% of participants indicated that they were aware of them and those with more education were more likely to report being aware (p=0.05). **Implications and Conclusions:** Although functional food consumption among this sample of older adults is high, there is a need for further information regarding functional foods. These results provide information for registered dietitians and other stakeholders to inform development of strategies to promote health among older adults through consumption of functional foods. (Supported by Canadian Foundation for Dietetic Research)

Perceptions of health and consumption of whole grains in aging among Manitoba consumers: The Manitoba Consumer Monitor Food Panel.

*C Lengyel^{*1}, T Feltham¹, G Sevenhuysen¹, J Gaudet¹. ¹Faculty of Human Ecology, University of Manitoba, Winnipeg, Manitoba. [R].*

Objectives: To explore the relationships between health perceptions, whole grain consumption and aging among participants in the Manitoba Consumer Monitor Food Panel (MCMFP). **Methods:** The MCMFP, established in 2010, is a longitudinal panel that gathers opinions about food-related issues from consumers residing in urban and rural communities in Manitoba. In spring 2011, data was obtained from 2288 panelists (Female: 77%) with approximately $\frac{3}{4}$ of the sample over 45 years of age and 53% living in rural areas. **Results:** Approximately, 71% of panelists assessed their overall health and healthiness of their diet as 5 or 6 on 7-point scales (7=excellent/very healthy). Of the respondents, 46% consumed 2 or fewer servings of whole grains per day. The top three snack categories reported were fruits, dairy products and grains. Those who considered food and nutrition to be important in maintaining or improving their health were significantly more likely to consume more daily servings of whole grains ($\chi^2=80.7$, $df=30$, $p<0.001$) and were significantly more likely to be older ($\chi^2=62.9$, $df=36$, $p=0.004$). There is a significant positive correlation between age and consuming more daily servings of whole grains ($r=0.035$, $p=0.048$).

Implications & Conclusions: Canada's Food Guide recommends that half of the recommended servings of grain products each day be whole grain, which translates to 3-4 servings. As shown, many panelists are not consuming enough whole grains even though they rate the healthiness of their diet as very healthy.

Perceived recommendation and adequacy of intake of vegetables and fruit consumption within a population with prediabetes in London, Ontario.

*I Giroux^{*1}, A Aktar¹, V Coates¹, J Mathyssen², P Colby², P Dey¹, I Hramiak². ¹Brescia University College, London, Ontario, and ²St. Joseph's Health Care, London, Ontario. [R]*

Objective: To assess the perceived recommendation for daily vegetables and fruit (veg&fruit) intake of individuals within a prediabetes population and their attainment of the actual recommendation according to Canada's Food Guide (CFG). **Methods:** In 2009-2010, 114 individuals (half men and half women, aged 35-83, including 55 middle and 59 older adults) attended two education sessions on prediabetes and completed a questionnaire prior to the start of session 2. Participants were asked their perception of the CFG recommendation for veg&fruit intake/day and if they thought they were meeting the actual recommendation. **Results:** Average self-reported participant weight and height were 88.6 ± 18.2 kg (mean \pm standard deviation) and 1.70 ± 0.11 meters respectively, for a body mass index of 30.9 ± 6.6 kg/m². On average, participants believed that the CFG recommendation for veg&fruit intake was 4.9 ± 2.1 servings/day. Forty-six percent (52/114) were under the impression that the recommendation of CFG for veg&fruit was <5 servings/day. Almost 60% of participants (67/114) were confident that they were meeting the actual recommendation. A third of participants (38/114) felt that they were not meeting the recommendation and few participants (9/114) did not know. **Implications & Conclusions:** These results provide insight into the perceived recommendations and consumption within this sample population of individuals with prediabetes. Those providing prevention education to individuals with prediabetes will be able to use these results to clarify the recommended intake of veg&fruit. This may help increase actual veg&fruit consumption. Further studies are needed to confirm these preliminary results.

Factors influencing milk intake in pre-teens: Focus group outcomes

*CJ Henry^{*1}, H Vatanparast¹, SJ Whiting¹, GA Zello¹, TN Phillips¹. ¹College of Pharmacy & Nutrition, University of Saskatchewan, Saskatoon, Saskatchewan [R].*

Objectives: To assess factors that contribute to milk choice in children and understand experiences and perceptions surrounding milk consumption. **Methods:** The study population included 71 children enrolled in grades 5 to 8 from 4 urban and 2 rural schools in Saskatchewan. Each child participated in one of 11 focus group interviews following an intervention that removed chocolate milk from their schools for 4 weeks. Focus group interviews were conducted in January 2012 during regular school hours. Focus groups were approximately 25 to 30 minutes in length, audiotaped and transcribed for qualitative data analysis. **Results:** While students accurately stated health benefits of milk (i.e. source of calcium and energy), the most important perceived influences to their milk intake were taste, availability, cost, convenience and family/peer acceptance. Common beverage replacements at school, when milk was not consumed, were water and juice. A perceived barrier to drinking milk was the lack of variety compared to other beverages such as juice that offer many flavours. When chocolate milk was removed from the school, and white milk only was offered, many students stated that it did not affect milk consumption at home. However, measured total milk usage in the schools dropped by approximately half. White milk intake appeared habitual in many households with meals but it was also offered as snacks after school or before bed. **Implications & Conclusions:** Students suggested strategies for improved milk intake such as offering containers with lids to increase portability. Students also valued choice by suggesting an increase to the variety (i.e. size, fat content, flavour) of milk offered. Health professionals need to be aware that factors affecting milk intake by youth is complex but that changes to school milk programs, such as removing chocolate milk, have the potential to affect total milk consumption in children.

Preliminary data on infant feeding intention compared to practices of women at 2-months postpartum

*S Atwal^{*1,3,4}, I Giroux², S-M Ruchat^{3,4}, J Hicks², MA Binnie³, EM Yaquian³, MF Mottola^{3,4}. ¹Masters of Science in Foods and Nutrition, ²Brescia University College and ³Exercise & Pregnancy Lab, ⁴The University of Western Ontario, London, ON.[R]*

Objective: To compare women's intention to breastfeed to their breastfeeding practices at 2-months postpartum. **Methods:** Twenty-six (13 overweight/obese and 13 healthy weight), mostly Caucasian women from London (Ontario) were asked to complete infant feeding questionnaires at 2-months postpartum. **Results:** These women were 31.6±4.0 (mean±standard deviation) years old and had a body mass index (BMI) of 27.4±6.3kg/m². Fifteen women had a previous child and breastfed exclusively for 5.8±4.6 months. During their recent pregnancy, 24 of the 26 women planned to breastfeed their infant, either exclusively or in combination with infant formula. Half of those women (12/24) wanted to breastfeed for ≥6 months. The two women who did not plan to breastfeed were advised by their physician not to because of medications they were taking. At 2-months postpartum, over half of the women were exclusively breastfeeding (15/24), few were supplementing with formula (4/24) and some only offered formula (5/24). Those who stopped breastfeeding did not breastfeed as long as they intended and the majority of them (4/5) had a BMI≥25.0kg/m². Furthermore, nearly 26% of the breastfeeding women were not providing vitamin D oral supplementation to their infants at 2-months postpartum. **Implications and Conclusions:** Our results suggest that postpartum women, especially overweight/obese women, would benefit from more support after delivery given that 21% of women who planned to breastfeed their infant had stopped breastfeeding at 2-months postpartum. In addition, these women would also benefit from education about the importance of vitamin D and infant health. *Funded by CIHR and Rx&D Health Research Foundation.*

Perception of personal and offspring risk of type 2 diabetes among women with GDM

*J McLaren^{*1}, J MacLellan¹, R McManus², PDN Dworatzek¹, I Giroux¹, ¹Brescia University College, London, Ontario, ²St. Joseph's Health Care, London, Ontario. [R]*

Objectives: To describe perception during pregnancy of self-risk and infant risk for developing type 2 diabetes mellitus (T2DM) among women with gestational diabetes mellitus (GDM). **Methods:** Between 34 and 40 weeks of gestation, pregnant women (n=78) aged 18-50 years diagnosed with GDM completed a risk assessment questionnaire after providing informed consent. Participants were asked to rate their perceived lifelong personal risk for developing T2DM and their infant's risk, on a scale from 0 to 100%. Prior to completion of the questionnaire, participants had received individualized counselling in GDM background and management from a Certified Diabetes Educator nurse and dietitian. Research was completed at a tertiary care Endocrinology and Pregnancy Clinic, St. Joseph's Health Care, London, Ontario. **Results:** Participants had a mean age of 32.3 ± 4.7 years, pre-pregnancy BMI of 31.7 ± 7.1 kg/m², and parity of 1.2 ± 1.5. On average women perceived their own risk to be 44.2 ± 26.1% and their infant's risk to be 33.6 ± 22.0%. Proportion of women perceiving their own risk and their infant's risk to be ≥50% was 60.8% and 40.0% respectively. Perceived infant risk was significantly lower than perceived self-risk, *p*≤0.05. **Implications & conclusions:** Findings from this survey suggest that pregnant women with GDM seen in this outpatient clinic perceived their own risk for developing T2DM, as well as the risk of their child developing T2DM. These results may suggest a window of opportunity to inform and support positive and protective behaviour changes in the family setting. Further, these findings may help to focus and clarify current T2DM risk information as provided during pregnancy.

The voice of experience: a qualitative analysis of food intake, weight change and related factors in women treated with chemotherapy for early stage breast cancer.

*V Vance^{*1}, S Campbell¹, L McCargar², M Mourtzakis¹, R Hanning¹. ¹University of Waterloo, Waterloo, ON, ²University of Alberta, Edmonton, AB. [R]*

Objectives: Weight gain is a common problem for many breast cancer survivors, however relationships between acute and chronic effects of treatment, dietary change and weight gain after diagnosis are poorly understood. The purpose of this study was to gain an appreciation of the experience of food intake and weight change over the treatment trajectory, from the perspective of women who have received chemotherapy for breast cancer. **Methods:** In-depth qualitative interviews were conducted with 28 breast cancer survivors, within 12 months of completing treatment. **Results:** Food intake during treatment appears to be highly responsive to treatment day, with most women reporting irregular meals and snacks as tolerated and lower food intake for the first few days after receiving chemotherapy. Women who lost weight (n=6) tended to report more severe and persistent side effects of treatment (fatigue, GI disturbance), leading to a more prolonged reduction in food intake after each cycle. Increased appetite, food cravings and increased intake of energy dense comfort foods seemed to be more common among women who gained weight (n=11). In these women, changes in taste, nausea and emotional distress were central in promoting these dietary responses. Most women reported lower physical activity during treatment. **Implications & Conclusions:** While the etiology of weight gain in this population is complex, our findings suggest that food intake and dietary patterns may play an important role for some women. A theoretical framework based on these findings may serve to guide future research and the development of nutrition intervention strategies.

This research was supported by a grant from the Canadian Foundation for Dietetic Research. V. Vance was funded by a Doctoral Research Award from the Canadian Institutes of Health Research.

Feeding babies and toddlers: what do Ontario mothers understand about current nutrition guidelines?

J Gallagher. Dairy Farmers of Canada, Mississauga, Ontario. [R].*

Objectives: Inadequate nutrition can have long-lasting effects on babies' development, and in the case of iron deficiency, can have serious implications. Conveying relevant nutrition advice to new mothers requires understanding their current knowledge and practices and the challenges they face when feeding their babies. **Methods:** Five hundred Internet-based interviews were conducted among mothers of infants and toddlers in Ontario. **Results:** Findings showed that 97% of mothers have a concern about feeding their infant or toddler. A significant minority are misinformed about proper infant feeding practices and how to best transition infants from exclusive breast-feeding or formula to first foods and then to family meals. Several misconceptions were identified, including these: 43% did not know at what age solid foods should be introduced; many were unaware of the importance of dietary iron at six months of age; only 5% knew that meat and alternatives should be introduced as first foods; only 25% knew that cow's milk can be safely introduced at nine months of age; and over 40% did not know that plant-based beverages (e.g., soy, rice and almond beverages) are not appropriate for children younger than two years. The majority of respondents mistakenly believed lower-fat cows' milk, rather than whole milk, is appropriate before age two, and felt children should be coaxed into trying new foods they refuse to eat. One in four mothers believed candy, chocolate and salty snacks could be introduced by age two. **Implications & Conclusions:** Many new mothers are confused about appropriate feeding practices for babies. Results identified knowledge gaps and informed key nutrition messages to educate mothers of infants and toddlers about offering appropriate foods at the right time for their child's optimal development.

Social media: support for public health clients

E Vilorio-Tan, S Baker, S. Region of Peel – Public Health, Mississauga, Ontario. [E]*

Purpose: Recognizing that pregnancy and postpartum are key times when clients seek out health information, this social media strategy targets pregnant women, parents of children under six, and their families. The purpose of this 6-month pilot project is to determine the feasibility and effectiveness of a social media platform as a means to raise awareness of key messages and provide support to an ethnically diverse client-base. **Process:** A needs assessment of clients and their use of technology indicated the majority of clients used the internet to find health and parenting information. They also

participated in social media, most often on Facebook. These results combined with an environmental scan and a comprehensive literature review provided a strategy to initiate a Facebook page. **Project Summary:** Providing timely and accessible client service in a rapidly growing, diverse population is an ongoing challenge for community health professionals. Innovative strategies are required to provide education and support in an increasingly technologically savvy world. Social media provides an avenue to meet client needs in an interactive, leading-edge way. This Facebook page allows clients and community partners to interact with public health nurses and Registered Dietitians, have their questions answered and learn key messages about Family Health. Incorporating client engagement strategies ensures two-way communication, which provides an opportunity to identify needs and gauge customer satisfaction. **Recommendations & Conclusions:** This project was evaluated and is now part of regular programming. It is a fun, fast and lower cost strategy that complements traditional methods of client support and enhances our reputation as a credible, innovative, and caring organization.

Prevalence and predictors of anemia, iron deficiency (ID), and iron deficiency anemia (IDA) among children in Kampong Thom, Cambodia.

*A O'Connor*¹, B Main², J Randall Simson¹. ¹University of Guelph, Guelph, Ontario, ²World Vision Canada, Mississauga, Ontario [R].*

Objective: To assess predictors of anemia, iron deficiency (ID) and iron deficiency anemia (IDA) among children 6-59 months living in Kampong Thom province, Cambodia. **Methods:** A cross-sectional study was completed by the National Nutrition Program, National Institute of Public Health and World Vision in 2008. Children were randomly selected ($n=767$). Child weight and height were measured; demographics were assessed by questionnaire; blood was taken to assess iron (hemoglobin, ferritin, soluble transferrin receptor) and vitamin A (retinol binding protein (RBP) status, C-reactive protein (CRP), and presence of parasites (malaria parasitemia, ova & parasites in stool) were determined using standard procedures. Multiple linear and binary regression determined relationships among variables. **Results:** The prevalence of anemia was very high (57%). Factors reducing the likelihood of being anemic were: female gender, age > 24 months, children without ID or high RBP ($<0.70 \mu\text{mol/L}$), without infection (CRP $>10 \text{ mg/L}$), and who were not wasted. In addition, 39% and 27% of all children had ID and IDA, respectively. Eighty-four percent of anemic children had ID, suggesting that ID played a major role in the etiology of anemia. Factors reducing the risk of being ID included age > 24 months and female gender; for IDA, the strongest predictor was age < 24 months. **Implications & Conclusion:** Our study confirms that anemia is a serious public health concern in Kampong Thom, Cambodia and reinforces importance of factors such as infection, ID, VAD in the etiology of anemia. Results may guide future programs and interventions combating anemia and ID, especially in female Cambodian children < 24 months of age. World Vision funding.

“You must do the thing you think you cannot do”: Enhancing capacity for critical dietetic inquiry.

*M Poultney*¹, J Gingras¹. ¹Ryerson University, Toronto, ON. [E]*

Purpose: The Scholarly, Research, and Creative (SRC) Activities Team was created two years ago to enhance undergraduate students' capacities to conduct critical dietetic inquiry. Building upon this experience, the SRC Team was evaluated to determine the effectiveness of this model of training for and to develop creative new ways for students to engage in practice-based research. **Process or Content:** Fifteen team leaders and 24 student researchers completed a six-item, open-ended survey regarding their experiences as SRC team members. Topics addressed by the surveys included skill development, learning opportunities, and the respondents' perspectives of practice-based research. **Project Summary:** Team members indicated that being part of the SRC team was worthwhile and enriched their learning beyond the formal dietetic curriculum. Many respondents indicated that prior to their involvement with the SRC team, they were either unaware or uninterested in conducting research. Some even believed they were incapable of leading a project and mentoring more junior students. These students benefitted most from the supportive environment the team provided. Afterwards, most expressed that they intended to pursue dietetic research in their future practice. SRC team members were also

encouraged to present research at conferences and many noted that they felt better prepared for internship and their dietetic practice given this exposure. **Recommendations & Conclusions:** This team-based model is an effective method to supplement dietetic education and the leadership opportunities for students and may serve as preparation for their roles as practice-based researchers, educators, and professional practice leaders. More effort to enhance capacity for critical dietetics inquiry is warranted given the desire for promoting dietetic practice-based research. Adequate resources are required to effectively manage and develop such a team.

IDENTIFICATION OF VULNERABLE GROUPS AND THEIR NUTRITIONAL NEEDS

The use of front-of-pack nutrition rating systems on new breakfast cereal labels (1999-2011)

M Lim^{*1}, T Emrich¹, M L'Abbe¹. ¹Department of Nutritional Sciences, University of Toronto, Toronto, ON [R].

Canada's first proprietary front-of-pack nutrition rating system (FOPS) was launched in 1999, and since then a proliferation of FOPs has been noted. However, no study to date has documented the propagation of FOPs on food labels. **Objective:** To explore the presence of FOPs on new breakfast cereal labels introduced to Canada between 1999-2011. **Methods:** We conducted retrospective analyses of new or reformulated breakfast cereals. Breakfast cereals were identified from the Mintel Global New Products Database, an online global database of consumer packaged goods. We used the search terms: "cold breakfast cereals", "1999-2011", "Canada" and ("Re-launch" or "New Variety" or "Range Extension" or "New Packaging"). Images of breakfast cereal labels were analysed for FOPs using the definition published by the Institute of Medicine. **Results:** From 1999-2011, 619 new or reformulated breakfast cereals were introduced. Five cereals were excluded because label images were unavailable. We observed a significant rise in the use of FOPs on cereal labels by manufacturers over 12 years ($p < 0.001$). Specifically, between 1999-2001 no labels carried FOPs. During 2002-2004, 2-4% of labels carried FOPs and, between 2005-2007, that number rose to 12-25%. The use of FOPs significantly increased to 41% in 2008. Between 2009-2011, introductions remained high but plateaued at 43-47%. Most FOPs (91%) were nutrient-specific systems, like *Kellogg's Get the Facts*, or summary indicator systems, like the *Heart and Stroke Foundation's Health Check*. **Implications & Conclusions:** In our study we saw the prevalence of FOPs increase dramatically in the last 4 years. Such changes in the food labelling environment require updating consumer messaging about effective use of food label information to make healthy choices.

The Healthy Food and Beverage Sales in Recreation Facilities and Local Government Buildings Initiative (HFBS): experiences of recreation facility staff

K Davison^{*1}, L Cameron¹, J Lu², R Booth². ¹Viva Health Education and Research, Mission, BC, ²Corporation of the City of New Westminster, New Westminster, BC [E]

Purpose: As part of a municipal food services study, The Healthy Food and Beverage Sales in Recreation Facilities and Local Government Buildings (HFBS) Initiative was reviewed in recreation facilities of BC's lower mainland. **Process or Content:** The review of the HFBS Initiative consisted of reviewing the operations of 11 delegated sites including in-depth interviews with various recreation staff members. **Project Summary:** All sites were implementing the HFBS program to some extent and this was dependent upon funding. None had officially adopted a healthy food and beverage policy, but, most were offering healthy options for vending, concessions, staff meetings, and in recreation programming. Challenges that were identified included adhering to the nutritional guidelines, working with vending and concession contractors to implement the initiative, an initial decline in sales, buy-in from frontline workers, and limited choices available from suppliers. To facilitate implementation, the sites identified different strategies: 1) tracking sales and shifting products to other sites as needed; 2) use of intercept studies and point of sale promotion; and 3) audit vending machine offerings on a regular basis to ensure items were placed into the correct categories. **Recommendations & Conclusions:** At the facility level, the HFBS

Initiative was a catalyst for changes in food provision and promoted dialogue on policy development; the provision of seed funding was instrumental for implementation. Facilitating changes in food environments of municipal facilities requires establishing tangible goals, commitment from stakeholders, dedicated resources, continual buy-in and ongoing monitoring.

Health professionals' perceptions of sugars consumption trends

*K Anciado, MAN, RD*¹, J Bernstein², T Brisbois, PhD², ¹University of Guelph, Guelph, Ontario, ²Canadian Sugar Institute, Toronto, Ontario. [R]*

There are many misconceptions surrounding sugars consumption. Added sugars consumption has not increased over recent decades in countries such as Canada, Australia, the United States, and the United Kingdom. The overall purpose of this project was to determine health professionals' perceptions of sugars consumption trends. **Objectives:** to gather users' feedback of Canadian Sugar Institute (CSI) resources and to assess dietitians' knowledge of trends in sugars consumption in Canada. **Methods:** From 2003-2011, conference attendees voluntarily completed CSI surveys, which included questions on demographics, preferences for CSI resources, and sugar-related knowledge. **Results:** Dietitians represented 60% of survey participants. Dietitians and the majority (80%) of nurses and physicians claimed to often discuss nutrition with their clients. Most respondents (76%) found CSI's resources useful. Topics of interest for resources included: glycemic index, type 2 diabetes, nutrition labelling, dietary guidelines and dental health. Sugar-knowledge questions revealed that the majority of dietitians (77%) were not aware that sugars and syrup consumption has decreased in Canada. Some dietitians (39%) correctly identified that 10-15% of Canadians' total energy intake is attributed to total added sugars. Less than half of dietitians were aware that HFCS is used to sweeten most soft drinks sold in Canada. Most dietitians (70%) were not aware that Canadian consumption of soft drinks is half that of Americans. **Implications and Conclusions:** There appears to be a need for an effective transfer of evidence-based knowledge to dietitians and other health professionals regarding sugars and trends in consumption. CSI should continue to develop resources for these professionals to use as tools in discussions with their clients.

Minding Our Bodies: healthy eating and physical activity for mental health

S Mitchell¹, E Ng¹, R Reiff¹. ¹Canadian Mental Health Association, Ontario, Toronto, Ontario. [E]

Purpose: Research shows that increased physical activity and improved diet can have significant positive effects in preventing chronic disease, improving chronic disease outcomes and supporting recovery for people with serious mental illness. The purpose of this project is to increase capacity within the community mental health system in Ontario to promote physical activity and healthy eating for people with serious mental illness and explore best practices in health promotion with this population. **Process:** Minding Our Bodies serves as an "incubator" to help mental health service providers, together with community partners, develop and deliver evidence-based physical activity and healthy eating programs, improve access to local resources, and promote social inclusion. Our project partners include Echo: Improving Women's Health in Ontario, Mood Disorders Association of Ontario, Nutrition Resource Centre, YMCA Ontario, and York University. **Project Summary:** Pilot sites were funded through the project by Ontario's Healthy Communities Fund to implement health promotion programs in their communities. An online toolkit and training modules were used to support service providers, consumer leaders, and volunteers in developing programs. Each pilot and the overall project were evaluated. Findings from the evaluation are used to inform best practices in mental health promotion with people with serious mental illness. **Recommendations & Conclusions:** The project was able to increase awareness of the connection between mental health, healthy eating and physical activity among participants, mental health providers, and stakeholders. Results reinforced that dietitians play an important role in partnering with community mental health organizations to implement healthy eating and physical activity programs. Community partnerships, peer support, peer leadership development, access to local resources, and organizational commitment were found to be instrumental to program success.

Access to food in the Canadian Arctic: a conceptual framework.

*A Accardi*¹, C Morley¹. ¹Acadia University, Wolfville, NS. [R].*

Objectives: The objective of this study was to compile the factors that determine access to food in the Canadian Arctic, and to illustrate their interdependency. **Methods:** A systematic review of primary and secondary literature was conducted to explore food and nutrition issues in the Canadian Arctic. Studies meeting the inclusion criteria were classified into: 1) food consumption and dietary patterns; 2) nutritional quality; 3) food [in]security; 4) diet-related chronic diseases; and 5) nutrient deficiencies. Factors contributing to access to food were organized into a conceptual framework (CF). **Results:** We found that most published reports were dietary assessments, estimations of the incidence of chronic diseases and nutrition deficiencies, and examinations of the social contributors to these phenomena. No reports were found of efforts to integrate findings from disparate studies to envision comprehensive approaches for effective and meaningful programs and services. Access to food was repeatedly reported as a barrier to adequate health and nutritional status at both individual and population levels. The CF illustrates how access to imported ('Market Foods') or locally-harvested ('Country Foods') foods is determined by multiple factors including the transmission of traditional harvesting practices, community structure(s), production capacity, individual preferences, and affordability. **Implications & Conclusions:** We recommend consideration of the emerging CF to invite conversations about and to develop an understanding of the interdependency of factors that constitute access to food in the Arctic for the planning of effective action. The CF can also inform the articulation of questions for further inquiry.

The invalid's dietary: Its presence in the present?

C Morley. Acadia University, Wolfville, NS. [R].*

Objectives: The objectives of this research were to explore cookery books, receipt collections, and women's diaries from the long 18th century (1640-1840) to learn about the foods and dishes fed to the sick, and to explore connections, if any, between those practices and present-day dietetic practices. **Methods:** Hand-written and published collections of recipes were reviewed to compile those within sections entitled 'sickroom cookery', 'the invalid's dietary', etc. Comparisons were made of the names of dishes, ingredients used, preparation methods, and instructions for use. **Results:** The review revealed consistency in the composition and preparation of recipes for feeding the sick for over 300 years (through to 1958 when care of the sick shifted from home to hospital), that all foods served were liquid, that descriptors did not correspond to the physical properties of the foods/ingredients (e.g., 'strawberries can be too hot'), and that there were no instructions for use. These observations lead to a broader search of period sources in medicine, nursing, homemaking and/or estate management to determine, if possible, the rationale for use. **Implications & Conclusions:** Questions arising are about the beliefs underpinning the longstanding use of these receipts, the meanings of descriptors, connections between the use of the receipts and medieval practices of feeding to 'balance the humours', and how, if at all, centuries-old liquid-based feeding regimes relate to present-day transitional diets (i.e., clear fluids and full fluids)? Exploration of the questions arising continues. This study derived from interest in the life and times of Jane Austen, and has evolved into the study of evidence to support present-day feeding practices. Visiting Fellowship research support provided by Chawton House Library, Hampshire, England (www.chawton.org).

Body dissatisfaction, concerns about aging, and food choices among baby boomer and older women in Manitoba.

*C Marshall*¹, C Lengyel¹. ¹Department of Human Nutritional Sciences, University of Manitoba, Winnipeg, Manitoba. [R].*

Objectives: To explore body dissatisfaction (BD) and concerns about aging among baby boomer and older women, and examine how experiences/attitudes towards the body influence their food choices.

Methods: Surveys and focus groups were used to collect data from baby boomer (ages 46-65) and older (ages 66-85) women living in rural and urban Manitoba (n=137). **Results:** Level of BD varied among the sample. One-third of women expressed concern about the effects of aging upon their appearance. Most women (72%) felt self-conscious about their body, and some reported that these feelings prevented them from participating in enjoyable activities. On average, women wanted to weigh 8.8 kg less than their current weight. Fifty-three percent of women reported dieting within the past year, with 21% participating in a formal weight loss/diet program. Urban-dwelling women were more preoccupied with appearance, reported more appearance anxiety, and were more likely to use anti-aging products on a daily basis, compared with rural-dwelling women. Rural-dwelling women were more likely to use local and organic foods on a regular basis. Baby boomer women reported higher BD, greater concern about aging, and more dieting behaviours than older women. **Implications & Conclusions:** BD and concerns about aging may influence dieting behaviours and food choices, although there seem to be differences based on age and location of residence. Dietitians should be aware of body image issues experienced by aging women in order to provide effective and empathetic nutrition counseling in a way that minimizes BD, prevents harmful dieting, and promotes successful aging. There is a need for community programs that provide appropriate nutrition education and promote positive body images among aging women.

Body mass index, waist circumference, risk eating behaviors and attitudes toward body figure in a female sample of Moncton University students

*T J Saucedo-Molina^{*1}, L Villalon², J Zaragoza Cortes¹, A Peña-Irecta¹. ¹Autonomous University of Hidalgo. Academic Area of Nutrition. Hidalgo, Mexico. ² Université de Moncton. École de sciences des aliments, de nutrition et d'études familiales. Faculté des sciences de la santé et des services communautaires. Moncton, New Brunswick. [R]*

Introduction: The multifactorial origin of eating disorders is well known and among the most studied risk factors are: eating behaviors, high body mass index (BMI) and body thin-ideal internalization. Several studies have confirmed a high prevalence of these risk factors, particularly in adolescents and young adults, and predominantly in females. **Objective:** The purpose of this study was to evaluate the prevalence of risk eating behaviors and body thin-ideal internalization, and its relationship with BMI and waist circumference (WC) in a sample of female students from Moncton University in Canada. **Method:** A sample of 84 female students from Moncton University with a range of 18 to 30 years ($X=21 \pm 2.1$), completed self-reported multidimensional questionnaire to assess risk eating behaviors and body thin-ideal internalization. To calculate Body Mass Index (BMI), each subject was weighed and measured, as well to get WC. **Results:** Results showed that 75 % had a normal weight. There were fewer students in the very underweight (1%) and underweight (3%) categories, than those in the overweight (15%) and obese (6%) categories. The prevalence of risk eating behaviors was 6% (mainly dietary restraint) meanwhile body thin-ideal internalization was 29%. For both risk factors, the analysis by BMI showed that the higher percentages were obtained for the overweight students. From 14% of students who reached WC>80 cm, 50% reported risk eating behaviors, and 70% body thin-ideal internalization. Significant correlations were founded between risk eating behaviors, attitudes toward body figure, BMI and WC. **Conclusions:** These findings are a significant contribution in the research field of eating disorders in Moncton, Canada and it must be consider in the design of new research in this topic.

Implementation of an electronic spoken menu system at St. Michael's Hospital

E Elliott, L Mannik*, J Goodwin, D Kwan, M Keith, H Fletcher. St. Michael's Hospital, Toronto, ON. [E]*

Purpose: The current paper-based menu system at St. Michael's Hospital (SMH) allows patients to self-select their meals one day in advance. Current menu return rates indicate that numerous menus are not returning to the Diet Office, possibly detracting from overall patient satisfaction. Furthermore, patients often wait at least two days before receiving self-selected meals. In an attempt to improve patient satisfaction with food services, SMH piloted an electronic spoken menu system (ESMS) where the patient is interviewed at the bedside and their selections are wirelessly uploaded into CBORD food management system. **Process:** In Phase 1, handheld electronic units were programmed, dietary assistants (DAs) were

trained, and staff from pilot units were interviewed to determine ideal timing for patient visits. The ESMS was implemented for a 13 day period by DAs. Menu return rates and the prevalence of 'alternate' requests were recorded. Currently in Phase 2, patients in short length-of-stay (LOS) units who have not returned a paper menu are being targeted. Menu selections for the following day are being collected over a two week period using ESMS. Patient satisfaction before and during the ESMS pilot period will be compared. **Project Summary:** In Phase 1, the ESMS had varying effects on menu return rates for each of the pilot floors. Populations with complex dietary requirements were not well suited to the simplistic programming of the ESMS software. Phase 2 is in progress. **Recommendations & Conclusions:** The results from Phase 1 necessitated further exploration into the effectiveness of the ESMS. Recommendations to target a short LOS population while using patient satisfaction as the primary outcome measure are being implemented in Phase 2.

Effect of questionnaire administration methodology in assessing customer service satisfaction in a hospital cafeteria

J Cavanagh, E Sobolev*, H Fletcher, M Keith, M Terebij. St. Michael's Hospital, Toronto, Ontario [R]*

Objective: To develop, face-validate and administer a questionnaire to assess customer satisfaction with the quality of service in the cafeteria at St. Michael's Hospital. **Methods:** This project involved the development of the Customer Service Questionnaire, which was composed of 20 closed-ended questions (4 multiple choice and 16 using a Likert scale) followed by one open-ended comment section. The questionnaire was face-validated by 2 foodservice managers, 11 nutrition professionals and 2 consumers. Following validation, the survey was administered to customers using two modalities: face-to-face (FF) interviews and online through SurveyMonkey™ (SM). All survey responses were entered into a database and percentages and frequencies of responses were calculated. Differences in survey methodology were tested using the Chi square test **Results:** In total, 460 and 134 surveys were collected through the FF and SM modes respectively. The FF mode captured 65% staff, 25% patients, and 9% visitors, whereas 100% of SM respondents were staff. Overall, significantly more FF respondents (82%) were satisfied with the customer service in the cafeteria compared with those who responded using SM (49%), ($p < 0.001$). **Implications & Conclusions:** SM yielded notably more negative results compared to the FF mode. This could be due to the presence of social desirability and acquiescence biases in the FF mode, which could potentially lead to more positive results. While the SM mode was subjected to less bias, it did not capture a representative sample of customers, as only staff members completed the survey. Consequently, to obtain more comprehensive results both face-to-face and online modalities of questionnaire administration should be used to assess customer service in a hospital cafeteria.

Sensory, physical texture and nutritional considerations for in-house pureed food served to older adults in long-term care

N Ilhamto^{1} and L Duizer¹, ¹University of Guelph, Guelph, Ontario [R]*

Objectives: In a long-term care setting, pureed foods are often prepared in-house. To date, there are few guidelines which exist regarding ingredients and preparation steps to use to acquire an optimum pureed product from a sensory and nutritional perspective. Therefore, the goal of this research is to explore the variables of importance for in-house development of turkey and carrot products with good sensory and nutrition properties. **Methods:** Pureed turkey products were formulated by varying the seasoning application (rubbed vs. non-rubbed), muscle type (breast vs. combinations of breast and thigh meat) and added liquid content (40% or 45% added liquid). Pureed carrot products were supplemented with modified corn starch, skim milk powder or rice cereal. Qualitative interview data of dietary staff in LTC and rheological and nutritional values of commercial pureed foods guided the development process. All formulations were evaluated by a trained sensory panel (n=10) and analysis of the macronutrients as well as selected micronutrients was conducted. **Results:** No perceived sensory differences existed in pureed turkey made with 60%white:40%dark or 100% white meat formulations. Pureed turkey with 40%w/w added broth content was significantly more thick, grainy and mouth-drying than formulations made with

45%w/w added broth. The 40% added broth liquid formulations also had significantly higher turkey odour, spice blend flavour and peppery flavour responses. Flavour and textural attributes were also affected by the seasoning application method (rubbed vs. non-rubbed). Pureed carrots made with added modified corn starch were significantly more slippery, firm, shiny and smooth in appearance. In-house turkey formulations also had consistently more protein content than commercial formulations. **Implications & Conclusions:** Results of this research provide guidance as to appropriate formulations for in-house pureed food production. Designing foods which have appealing sensory properties may aid to improve food intake and nutritional status of older adults with dysphagia.

The development of a conceptual framework to address the challenges of dysphagia management for people living in residential care

*C O'Leary^{*1} and C Morley¹. Acadia University, Wolfville, NS (E).*

Purpose: The purpose of this project was to develop a conceptual framework to incorporate multiple considerations in addressing dysphagia for people living in residential care. **Process or Content:** The project involved a literature review, and consultations with three dietitian key informants identified as having expertise in dysphagia management. The purpose of the exploration was to acquire an understanding of the interconnected influences on nutritional status for residents living in care. Synthesis of the findings resulted in the development of a conceptual framework. **Project Summary:** The literature on dysphagia management was organized into six interconnected categories: 1) texture modifications; 2) fortification; 3) increased meal frequency; 4) increased meal energy density; 5) use of oral nutritional supplements; and 6) use of oral micronutrient supplements. A seventh category was added to the conceptual framework - the contributors to residents' nutritional status that were observed in practice but that are not yet reported in the literature. This category includes relationships and dynamics between residents requiring meal assistance and those who feed them (i.e., positive one-on-one social interaction on a regular basis), mealtime physical environments, the visual appeal and presentation of texture modified foods, and adequate staffing and time for meal service. **Recommendations & Conclusions:** The challenge to success in dysphagia management is that efforts are needed in all of the interconnected aspects of dysphagia management to address and prevent malnutrition while maintaining quality of life, in residents living in care. The conceptual framework offers an organizational structure to envision the development of systems of care, individual care planning, and future research.

Nutrient analysis and consumer liking of commercial pureed foods

*L Ettinger^{*1}, L Duizer¹, H Keller². ¹University of Guelph, Guelph, ON, ²University of Waterloo, Waterloo, ON. [R]*

Objectives: It is often necessary for individuals with dysphagia to consume a pureed diet. Fear of choking can reduce food intake and contribute to malnutrition in this population. The main objective of this study was to explore the nutrient profiles of commercial pureed foods, and determine how well liked these products are by consumers. **Method:** Three different commercial pureed companies in Ontario provided four carrot and turkey purees, and two bread purees. All purees were analyzed for fat (Soxhlet), protein (Dumas), carbohydrate, total fibre, and sodium (titrator strips) amount using proximate analysis. For consumer testing, adults (>65 yrs) were recruited from two main sites: Bruyere Continuing Care (Ottawa, ON) and the Schlegel Villages (Greater Toronto Area, ON). Participants had to be consumers of pureed foods. Participants were asked to rate their liking of the appearance of the puree and their liking of the taste of the puree using a modified hedonic scale. The scale consisted of 5 smiley faces with an associated liking descriptor. **Results:** Significant differences in nutrient content were observed among the purees for all product types, notably the differences in fat content for the turkey products, with fat ranging from 4-14g/100g sample. Preliminary trends in consumer data indicate that there are differences in liking of the appearance as well as the taste among the four carrot and four turkey products, but not between bread products. **Implications & Conclusions:** Ensuring that this population is consuming pureed foods that are nutritionally adequate and well liked is crucial for the well-being of older adults with dysphagia. This research will help determine whether these foods are nutritionally adequate and well liked by consumers.

NUTRITION AND HEALTH EDUCATION/PUBLIC HEALTH NUTRITION/FOOD SERVICE

Developing a “Health At Every Size[®]” collaborative practice support group

*G Kasten^{*1}, J Rankin², N Spencer³, A Waisman^{2 1} Spectrum Health, Vancouver BC. ²Vancouver Coastal Health, Vancouver, BC. ³Providence Health Care, Vancouver BC. [E]*

Purpose: Health at Every Size[®] (HAES) is a health-centred approach advocating for health as a value, not weight as a goal. This includes: recognizing health and well-being as multi-dimensional; promoting all aspects of health for people of all sizes; promoting eating that balances individual nutritional needs, hunger, satiety, appetite, and pleasure; and promoting individually appropriate, enjoyable, life-enhancing physical activity, rather than exercise focused on a goal of weight loss. HAES practitioners recognize that weight stigma causes unintended harm, so respect for a diversity of body shapes and sizes is foundational. HAES has been associated with improved physiological measures, health behaviours, and psychological outcomes and has achieved long term health outcomes more successfully and without adverse consequences compared with traditional weight loss treatments. **Process:** The authors are dietitians practicing in isolation in outpatient and primary care. Without peer colleagues with whom to have reflective conversations on practice, using an innovative practice model has been challenging. Concern centred on the challenges of providing individualized counselling to clients, grounded in HAES, while working within a culture which continues to promote the weight-loss-centred paradigm. We each engaged in actively seeking other HAES practitioners and found such colleagues through individual conversations, email lists and mutual acquaintances. **Project Summary:** An introductory meeting was called and, in discussion, it was decided that on-going practice support and dialogue would enhance our ability to optimize using the HAES approach. **Recommendations & Conclusions:** We encourage dietitians working in isolation, pursuing HAES and other new practice approaches, to seek others and collaborate, forming approach-based practice groups. This ensures peer support for the challenges of implementing innovative practice models.

Dietitians as members of primary health care teams in Saskatchewan.

L Riley, C Henry, S Berenbaum, S Whiting, R Dobson. University of Saskatchewan, Saskatoon, Saskatchewan. [R]*

Objectives: The purpose of this study was to explore how dietitians describe their roles as members of primary health care (PHC) teams in Saskatchewan. **Methods:** Multiple techniques were used to recruit dietitians who were members of the Saskatchewan Dietitians Association (SDA) and members of PHC Team(s). Including advertisements in the SDA’s newsletter and snowballing. Fifteen dietitians participated in individual in-depth interviews via telephone or face-to-face and shared their perceptions of their team environment and roles. Interviews were conducted between January and March 2011. **Results:** Most participants identified themselves as community dietitians but they differed in geographical location, years of experience in PHC teams and types of PHC practice setting. Qualitative analysis of the interview revealed most participants described their team environments as very collaborative but a few described team environments with features such as fragmented working relationships and dictatorial decision making. When asked about their level of involvement on teams, most participants mentioned that they were active members of their PHC team(s). A few participants explained that they were primarily responsible for providing any nutrition-related services. Others indicated that they had a broad range of responsibilities including medical management of diabetes, patient advocacy, being a first point of contact and contributing to team planning and organization. Their level of involvement was influenced by their years on teams, level of expertise, location of practice –rural and urban, or type of teams- diabetes, chronic diseases. **Implications & Conclusions:** Dietitians are responding to the complex health care

environment by expanding their roles to meet the needs of the communities they serve. Hence they play a key role in the new paradigm of health care.

Exploring the role of dietitians in Trans care.

S. Khoo², N MacLellan^{1}, E Ng³, K Matheson¹. ¹Sherbourne Health Centre, Toronto, Ontario. ²Women's Health in Women's Hands Community Health Centre, Toronto, Ontario. ³Canadian Mental Health Association Ontario, Toronto, Ontario [E]*

Purpose: Transgender (Trans) clients have specific health care needs and dietitians are often involved in their care. However, dietitians experience in working with this population has not been well documented and the nutritional needs of the population have not been explored. The purpose of this project is to explore the role of dietitians in working with Trans clients. **Process:** Literature search was conducted to investigate current practice when working with this community as it relates to dietetics. **Summary:** Results showed very limited literature on the role of nutrition and dietetics in the care of this population. Nutrition related topics were identified based on existing standards of care: metabolic changes with hormone therapy, energy requirements, bone health, body image, and access to culturally competent care.

Recommendations & Conclusions: Recommendations related to specific nutritional issues are drawn from current literature and practice experience; results highlight the need for further research. Dietetic services are valuable to the care of this population. Research and guidelines are being developed in this emerging area of practice. It is important that dietitians participate in interprofessional collaboration, engage this community in assessing their needs, and to share our experiences and knowledge with others.

Digital narratives as an educational tool in food and nutrition practice.

*E Vettese^{*1}, A Magder¹, J Cavaleri¹, S Lynch¹, J Gingras¹. Ryerson University, Toronto, ON. [R]*

Objectives; Narratives (stories) are a means for preparing food and nutrition students for the complexities of their future practice (McAllister et al, 2009). Storytelling is also a means of bridging the empirical epistemological traditions of dietetic practice with the socio-cultural context in which practice occurs (Charon, 2006; Lordly, 2007). Given narratives' potential to benefit dietetic practice, this study provided practicing dietitians, nutrition students, and dietetic interns the opportunity to create digital stories from life experiences that they deemed important to share.

Methods; Practicing dietitians, nutrition students, and dietetic interns created digital stories during a three-day workshop. We assessed project outcomes during the creation of the digital stories, and through the dissemination process. **Results;** Participants indicated that turning a written story into a digital story provided a more powerful way to tell a narrative that allowed the teller to be concise and convincing as well as accessible to a wider audience. Although the participants found the process to be more challenging than writing a story, the entire experience provided vast education about the self and about new technology. Through sharing power between the facilitator and participants, digital narratives were found to be an engaging educational tool. **Implications & Conclusions;** Digital narratives have the potential to help students make sense of the reasons why they enter the profession and how they derive meaning from the profession once they enter into it. Through a self-reflexive process as integral to film-making, participants were able to delve deeper into their lives to make sense of moments that seemed ambiguous if left unspoken. Digital storytelling demonstrated to be a powerful and engaging medium to learn by and to teach with.

Interprofessional narratives: stories as a means for enhancing learning in health and community care.

*E Rudolph^{*1}, J Gingras¹, J Schwind¹, J Lapum¹, K Church¹, E Ignagni¹, F Odette², E Pantin³. ¹Ryerson University, Toronto, ON, ²Springtide Resources, ³The Centre for Digital Storytelling. [R]*

Objectives: A narrative approach to learning is based on the premise that people create and tell their personal stories to understand and give meaning to their lives and to themselves (Lambie & Milsom, 2010). The telling, listening, and sharing of stories has been used within various disciplines as a means of reflection, learning, and professional development (Conle, 2000; Hatem & Rider, 2004). **Methods:** Springtide Resources and The Centre for Digital Storytelling joined an interprofessional education team with faculty members from Nursing, Nutrition, and Disability Studies at Ryerson University. **Results:** Among the research team, narratives were viewed as a means for conveying personal, professional, and social experiences amongst co-learners intending to become health and community care providers. As nursing, nutrition, and disability studies are part of the health and community care field, we stand to benefit from writing, sharing, exploring, and making meaning of narratives. **Implications & Conclusions:** An interprofessional and narrative infused curriculum reflects an ethical approach to enhancing students' preparation for self-other encounters in diverse professional health and community practice fields. This study explores how an interprofessional narratives curriculum was developed where students, faculty, and community partners acted as educators and co-learners. This interprofessional narratives curriculum development experience can be used to fine-tune the course for similar future initiatives.

Une trousse éducative sur les saines habitudes de vie pour les enfants d'âge préscolaire

I Giroux¹, S-M Ruchat¹, C Beaulieu², E Harlton¹, MF Mottola¹, K Sandiland¹. ¹Western University, ²Réseau Franco-Santé-du-Sud-de-l'Ontario (RFSSO), London, Ontario [E]

Objectif: La *Trousse éducative sur les saines habitudes de vie pour les enfants d'âge préscolaire* a pour objectif de sensibiliser les parents et intervenants en garderie à l'importance du développement de saines habitudes de vie chez les enfants et de suggérer des jeux favorisant l'apprentissage d'une saine alimentation et d'un mode de vie actif en garderie et à la maison. **Contenu:** Les résultats de l'Enquête sur la santé dans les collectivités canadiennes 2004 révélaient que 6% des enfants 2-5 ans étaient obèses. La promotion des saines habitudes de vie dès l'enfance est primordiale afin de prévenir le développement de l'obésité. Des experts en nutrition et activité physique de Western, en partenariat avec le RFSSO, ont développé une trousse visant à promouvoir la santé des enfants francophones 0-5 ans et de leurs familles. La trousse est utilisée par les intervenants en garderie et offerte aux parents par l'entremise des garderies. La trousse fournit des conseils pratiques et ressources crédibles qui aident à promouvoir la saine alimentation et l'activité physique sécuritaire auprès des enfants. **Résumé du projet:** La *Trousse éducative sur les saines habitudes de vie pour les enfants d'âge préscolaire* a été développée pour favoriser le développement de saines habitudes d'alimentation et d'activité physique chez les enfants et leur famille et ainsi aider à prévenir l'obésité. La trousse renferme des jeux et conseils pratiques pour faciliter l'augmentation de comportements sains par les familles de jeunes enfants. **Recommandations et conclusions:** La *Trousse éducative sur les saines habitudes de vie pour enfants préscolaires* est un outil qui augmente l'accès à de l'information crédible pour les parents des communautés franco-ontariennes.

Exploring innovative nutrition education: an inquiry to develop an engaging program for grade 7 and 8 students

A Skeoch, A Kirkham. Dairy Farmers of Canada, Mississauga, Ontario. [E].*

Purpose: Engaging today's adolescents in meaningful nutrition education requires an understanding of their landscape: influencers, knowledge gaps, and effective learning strategies. Education resources must also meet the needs of health educators. Identifying what teachers need for successful program implementation and how technology can be used in the classroom is necessary. **Process:** Focus groups with grade 7 and 8 students (n = 60) and intermediate teachers (n = 30), consultation with teacher consultants, and a literature review on how adolescents use technology provided recommendations and identified challenges to consider in program development. **Project Summary:** Influenced by factors such as peer pressure, time, cravings, convenience, and taste, young teens seem unconcerned with their food choices. They claim they know enough about nutrition and feel their eating habits are established, so they are apathetic about making changes. They use technology to learn, communicate, and access

information and prefer it as a way of learning. Teachers identified a need for an up-to-date nutrition education resource that is personally relevant and engaging for students, incorporates technology, and includes individual choice and peer instruction components. Challenges to computer-based learning include varying technological abilities of teachers, capacity to monitor students' online activities, and variable access to computers and websites. **Recommendations & Conclusions:** An effective nutrition education program will engage students by illustrating food and nutrition issues relevant to them and provide realistic solutions; use innovative strategies, including social media as a forum to encourage peer-to-peer sharing; overcome variability in computer access and literacy by having online lesson activities available in hard copy; and provide training opportunities to support teachers with program implementation and provide nutrition-specific professional development.

Connecting with high school students: informing the development of novel nutrition education resources for grade 9 and 10 teachers.

A Kirkham, L Underhill, K Furgala. Dairy Farmers of Canada, Mississauga, Ontario. [E].*

Purpose: Developing effective nutrition education resources for teachers requires an understanding of students' perceptions of the following: the meaning and relevance of "healthy eating", their own eating practices, enablers and barriers to making healthy food choices, and sources of nutrition information. Insight into peer-to-peer electronic communication is useful when considering innovative peer-led learning strategies. **Process:** A literature review, key informant interviews with teachers, and focus groups with grade 9 and 10 students (n = 48) were conducted. **Project Summary:** Findings from the literature review and interviews informed focus group discussion questions. Students seem minimally engaged with making healthy food choices, but feel "reminders" would help. Students feel they are eating well if they are satisfied with their weight, are physically active, or meet some of the recommendations in *Canada's Food Guide*. Parents and the home environment primarily determine food choices; these, and coaches, are perceived as positive influencers. Teachers seem to have minimal influence. Students feel barriers to eating well are (1) eating with peers, (2) the school cafeteria, and (3) unstructured weekend eating. Students have little interest in food skills. Text messaging is their main electronic communication tool. **Recommendations & Conclusions:** While weight emerged as the main reason for students to consider making healthier food choices, a weight-focused approach to promoting healthy eating contradicts evidence-based practice. Further exploration of the varying roles of parents, coaches, the school environment, and peers in making food choices will guide us in developing nutrition education strategies to engage this population in a relevant way and to leverage enablers and address barriers to eating well. Text messaging presents one opportunity to connect with students.

Nutrition education goes "viral": the process used to encourage grade 5 students to share bone-health learnings online.

L Underhill, Dairy Farmers of Canada, Mississauga, Ontario. [E].*

Background: Power4Bones is an award-winning web-based bone-health program for grade 5 students. **Purpose:** To leverage the popularity of peer-to-peer "viral" online information sharing by creating an online activity that encourages students who participated in Power4Bones to share bone-health knowledge with friends who did not participate. **Process:** A web-based challenge was designed to extend the learning outcomes of Power4Bones. Quantitative and qualitative data were collected during three testing phases with grade 5 students who had not participated in the program. Students (n = 12) participated in focus groups to test the activity's initial concept in March. Challenge usage was tracked electronically and group discussion followed. Subsequent online sessions with students in June (n = 181) and October (n = 222) tested more fully developed versions of the challenge, collected data on challenge usage, and measured knowledge pre- and post activity with online surveys. **Project Summary:** Data collected at each testing phase identified the challenge's strengths and weaknesses in meeting learning objectives. Initial concept testing identified necessary changes to design features, user tools, the scoring process, and peer-sharing components. Each testing phase highlighted further opportunities to improve appeal, engagement, viral sharing, and learning outcomes. Pre- and post-use surveys indicated bone-

health knowledge increased after completing the challenge. **Recommendations & Conclusions:** Allocating time and budget to gather and incorporate target group feedback throughout the development process ensures the resource is engaging and meets learning objectives. This web-based challenge increased students' bone-health knowledge; peer-to-peer sharing of this activity can spread bone-health knowledge to a larger audience. Because viral sharing is a relatively new approach to nutrition education, the effectiveness of this web-based challenge will be monitored closely.

Evolving online nutrition education: lessons learned from a web-based preschool nutrition course

B McVeigh. Dairy Farmers of Canada, Mississauga, Ontario. [E].*

Background: Childcare providers (CP), who play an influential role in establishing children's eating habits, have limited nutrition education opportunities. Good Beginnings (GB) is a free online nutrition course developed for early childhood education students. **Purpose:** To improve GB's online nutrition education experience and to determine how it can meet the professional development needs of CPs. **Process:** An online survey of professors and students who used GB in their childcare training identified improvements for the course. CPs piloted the course and participated in a survey and qualitative focus groups to inform us about their learning needs, their reaction to online learning, and the course's appropriateness as a professional development opportunity. **Project Summary:** Professors, students and CPs agreed the course was useful, made valuable nutrition information easily accessible, allowed them to participate at their own pace, and appealed to different learning styles and technical competency levels. CPs felt the content provided real-life scenarios relevant to their work; a limited time frame and certificate upon completion were appreciated. Survey respondents identified the need for more flexible navigation options, more multicultural and up-to-date content, and robust technological learning tools (e.g., interactive slides, activities, and videos; forums for questions and discussion; links to resources for ongoing support; and online quizzes to assess learning). To increase user friendliness, language was simplified and an audio component added, images replaced text, and content was subdivided. **Recommendations & Conclusions:** Online nutrition education standardizes and increases access to learning. It must be current and interactive and incorporate multiple components to engage all types of learners. Improving and evolving GB into a professional development course has made valuable, relevant nutrition information accessible to educators who influence preschoolers' eating practices.

Hands-on educational cooking classes reveal perceived benefits and barriers related to, and experiences in adopting, the plant-based dietary pattern

J Goodwin, J Paisley, and M Greenberg, Ryerson University, Toronto, ON. [R]*

Objectives: The World Cancer Research Fund/American Institute for Cancer Research (WCRF/AICR) recommends a plant-based diet to reduce overall cancer risk. The objectives of this pilot study were to examine participants': 1) willingness to adopt, 2) level of success in adopting, and 3) perceived barriers and benefits to adopting the WCRF/AICR plant-based diet. **Methods:** Convenience sampling was used to recruit 10 women affiliated with breast cancer risk assessment clinics. Participants completed a self-administered survey on the perceived benefits and barriers of adopting the plant-based diet before and after attending three hands-on educational cooking classes based on the tenets of the social cognitive theory and WCRF/AICR recommendations. **Results:** Most participants were 45 to 59 years old (80%), married (90%) and had some post-secondary education (90%). Lack of information was the main barrier to adopting the plant-based diet. While most participants misunderstood the plant-based diet, most participants ($\geq 70\%$) reported that they would feel more content if they consumed a plant-based diet and they perceived it to be more environmentally friendly than an animal-based diet. Participants reported more perceived benefits than barriers regarding adoption of the diet and cooking class participation increased this effect. **Implications & Conclusions:** Most participants perceived more health benefits than barriers to adopting the plant-based diet. To better meet the information needs of this highly motivated priority population, educational resources need to be developed to fully explain the plant-based diet. The plant-based diet cooking class curriculum could integrate the plant-based diet recommendations within the context of the other WCRF/AICR population-based dietary recommendations to reflect a total

diet approach. Future studies could measure the effectiveness of cooking class participation on behaviour change.

Beyond clinical walls: Hamilton farmer's market lunch and learn cooking demonstrations.

*K Park*¹ & B Cantwell¹. ¹Hamilton Family Health Team, Hamilton, Ontario. [E]*

Purpose: To create a supportive environment in which individuals that may otherwise not access dietitian services explore healthy eating and chronic disease prevention through recipe demonstrations, discussion and sharing. **Content:** The cooking demonstrations are an open collaborative between the Hamilton Family Health Team and Hamilton Farmer's Market. The program was developed based on a growing interest in cooking locally and the identified need for basic skills within the health teams clients. HFHT provides a RD-facilitator to plan and implement sessions, using locally available foods. The RD leads 30 minute nutrition focused cooking demonstrations for clients on various health topics. Participants enjoy free samples and receive recipes, and resources to practice healthy eating at home. Sessions engage client discussion and inquiry throughout the demonstration. Nutrition education is integrated into each demonstration. The participants offer feedback and generate topics for future sessions. The program is promoted through extensive media campaigns. **Project Summary:** The program has expanded rapidly from media campaigns and regular client feedback. It is currently running monthly with an average of 12 clients per session (maximum 28). The program has also opened up into evening programs at local grocery stores and has been featured on local cable stations. The program is open to both FHT rostered clients and community members, allowing the program to reach difficult populations. **Recommendations and Conclusions:** The use of media campaigns has greatly accelerated the success of this program. The open collaborative with the city has also opened up the opportunity to access difficult to reach populations with health information and support. Now that the program is sustainable, this program shall be reviewed to see its effectiveness in the application of knowledge in clients.

Exploring the use of the community gardens by the Karen Community in London Ontario

*K McComb*¹, H Thomas^{1,2}, L Davies², C Gobert¹. ¹Brescia University College, Western University, London, Ontario. ²The London Community Resource Center, London, Ontario. [R]*

Objectives; The use of community gardens is associated with numerous health benefits including increased physical activity levels, improved mental health and enhanced nutrition. Research suggests gardening has added value to immigrant populations as it enables them to express their ethnic identity while maintaining their cultural values. The purpose of this study was to investigate the influences of gardening practices of the Karen Community, an ethnic group originally from South East Asia. **Methods;** Through in-depth interviews, six Karen Community members shared their perspectives regarding gardening practices that serve to maintain their Karen culture, and the barriers and facilitators influencing the utilization of the gardens located in London, Ontario. The data were audio recorded, transcribed verbatim and analyzed using an inductive content approach. **Results;** Five main themes were identified: facilitation of health benefits, maintenance of cultural values, promotion of social engagement, improving garden productivity, and barriers to healthy living in Canada. Of the themes identified, the first three positively impacted the participants' desire to use the gardens. Respondents stated the primary reasons for gardening included improved access to lower cost, culturally appropriate fruits and vegetables, and increased physical activity. **Implications & Conclusions;** The results of this study are consistent with previous literature suggesting that the use of community gardens is associated with health benefits including enhanced nutrition. Given the paucity of information about the utilization of community gardens by immigrant populations, the results of this study are important for identifying the roles of community gardens in the lives of immigrant gardeners in general, and particularly how they support healthy eating practices.

The experiences of participants taking part in the “Strive for Five at Home” cooking workshops: a descriptive multi case study

K Magee^{}, S Hanninen, J Llewellyn, Acadia University Graduate Dietetic Internship Program: Annapolis Valley District Health Authority. Berwick, NS [E]*

Purpose: To learn more about the specific experiences of participants at “Strive for Five at Home” cooking workshops and to share the findings with key stakeholders so that they may be used to inform future cooking workshop development. **Methods:** This is a descriptive multi-case study that describes the specific experiences of participants of three “Strive for Five at Home” cooking workshops (n=14) through the identification of themes. Demographics of the participants included low income, low literacy, rural location and young families. Qualitative data were collected using participant and facilitator questionnaires, researcher observation and reflective journaling. Data were compared and contrasted to generate themes and sub-themes for each case and the workshop series. Memo writing was conducted to gain a deeper understanding of the themes. Between-method triangulation and peer debriefing were used to strengthen results. **Results:** Two themes that carried across the workshop series were exposure and social. The importance of new recipes was identified as a sub-theme to exposure, while introductions, interaction and fun were the sub-themes identified for social. **Conclusions:** This research demonstrates the importance of cooking workshops to utilize recipes that are different yet practical for participants, allow participants to decide which recipe to create, and have participants sample recipes made during the workshop. Time should be allotted for introductions, to mingle and explore with others, and a communal meal and discussion; all while creating a fun, home-like environment. **Relevance to practice:** Previous research has suggested that behaviour change post-workshop improves with positive participant experiences, and this research helps frame what constitutes a positive experience for participants. Dietitians can use this research to develop client-centred cooking workshops that provide a positive experience for participants and consider participants as a whole person, in order to improve the overall impact of cooking workshops programs.

DIETETIC PRACTICE AND EDUCATION/TRAINING

New national integrated competencies for dietetic regulatory, education, and accreditation purposes

*C Eisenbraun¹, K Traviss^{*1}. ¹Steering Committee, Partnership for Dietetic Education and Practice (PDEP) [E]*

Purpose: To develop new national integrated competencies (ICs) for regulatory, education, and accreditation purposes. **Process or Content:** The IC initiative was undertaken by PDEP to replace three existing national professional standards documents (Essential Competencies, Entry Level Competencies and Knowledge Statements). The ICs were drafted by an eight-person working group comprised of PDEP sector group representatives, a consultant and a project manager. National and international competency documents from dietetics and other professions informed the work. Project phases: (1) Development of entry-level competencies (job tasks) with validation using a national online survey (n=2269 respondents), and (2) Development of performance indicators and assignment of assessment vehicles (Canadian Dietetics Registration Examination (CDRE), academic programs, internship/practicum), including a focused consultation with individuals involved with dietetic education program planning and delivery and/or candidate assessment (n~180). **Project Summary:** The finalized IC document is being released in spring 2012. The ICs will be incorporated into the CDRE, education programs and accreditation standards. The IC document will be revised at regular intervals to ensure that it continues to capture existing and emerging competency needs for entry to practice. **Recommendations & Conclusions:** Through a collaborative process, the IC initiative has defined the competencies and performance indicators used to assess candidates for entry to practice to the dietetics profession in Canada. All dietitians in Canada should be aware of the ICs as they will underpin dietetic education and practice into

the future. More information on the competency initiative is available in both English and French on the PDEP website www.pdep.ca.

Acknowledgement: PDEP acknowledges the funding support of Human Resources and Skills Development Canada and the efforts of everyone who contributed to the IC initiative.

The development of an objective structured clinical examination (OSCE) in an internationally educated dietitians bridging program.

B Brockest, L Buscher, D Candiotta, S DePaolis, T Fansabedian, L Hagen, M Jung, E Love. Ryerson University, Toronto, Ontario. [E].*

Purpose. Finding a thorough and objective method of assessment of candidates' readiness for practicum can be challenging. Although the OSCE is used in other health sciences, it is a relatively new concept in dietetics with a lack of data in the Canadian literature. The objective is to integrate standardized, realistic scenarios while allowing candidates to hone in one specific skill at a time. This is intended to complement existing methods and develop a depth and thoroughness that might be missed with traditional methods of assessment. **Process.** Based on the literature as well as practicum preceptor feedback, we identified skills to be assessed and created four OSCE stations consisting of simulations with standardized practice problems mapped to these skills. The stations included prioritization skills - prioritizing relevant versus extraneous information; interpretation skills – turning raw data into assessment and plan; communication skills – relaying information regarding a client to another practitioner or to the client; and food knowledge skills – the ability to translate intake records to relevant clinical data. Stations involved a combination of written and oral components. **Project Summary.** The logistics of this project involved recruitment of dietitians for development of both cases as well as evaluative rubrics. Dietitians were then trained in all of the cases and assessment tools to provide inter-rater reliability. **Recommendations & Conclusions.** Results from this project will help identify learning and assessment gaps that might present challenges to candidates as they transition to placement practicums and eventually to practice.

An in-depth analysis of the workforce characteristics of registered dietitians in Ontario.

A Miller, E Vogel. University of Ontario Institute of Technology, Oshawa, Ontario. [R]*

Objectives: There is a paucity of data regarding workforce characteristics of registered dietitians (RDs). The purpose of this study was to examine workforce characteristics of RDs in Ontario from 2003-2009. **Methods:** Secondary data analysis was conducted with registration files from the College of Dietitians of Ontario registration database. Descriptive statistics were used to address two questions: What does the profession of dietetics look like? What are the employment transition trends of RDs? **Results:** Data analysis revealed two themes: (1) Succession planning for mid-career RDs: What are the priorities? (2) The shift to the community: Who is paying the moving costs? Although findings indicated an increase in growth in the workforce across all age groups, there was a decline in the proportion of RDs aged 40-49 years and 50-59 years. Results depicted a shift in the workforce out-of-government and public health (GO/PH) settings into long term care (LTC) and community care access centres (CCAC) and family health teams (FHTs). In 2009, only 3.74% of RDs in Ontario were employed in food service and administration (FSAD). Findings suggest that RDs displaced by FSAD and GO/PH settings were absorbed by LTC/CCAC and FHTs. **Implications and Conclusions:** Workforce expansion in some sectors occurred concurrently with contraction in others. Additional research is necessary to determine whether changes are a response to community and/or population needs; labour market economics within the dietetic workforce; or, the result of an absolute shortage of RDs. If the former situation is correct, implications related to curricula and practicum training and workforce planning for RDs will be significant. In the latter situation, strategies related to retention of the RD workforce may be more pressing.

The complexities of sex composition in the dietetics profession: implications for recruitment

D Lordly¹, Mount Saint Vincent University, Halifax, Nova Scotia [R]

Objectives; Dietetics is a female dominated profession. Based on the perceptions that students enrolled in dietetic programs held regarding sex composition and the dietetic profession, this work describes the assumptions and stereotypes that complicate the notion of changing the sex composition within the profession. **Methods;** A survey was administered, in class or online to first and fourth year nutrition students at seven dietetic programs across Canada. Data were subjected to content analysis to ascertain why students thought more males were not choosing dietetics as a career and what impact they thought an increase in males choosing a dietetics career might have on the profession. **Results;** Assumptions about being male or female in dietetic practice were surfaced. Participants identified various barriers to dietetics as a career choice for males. Most revealing was the influence of stereotyping and assumptions, both societal and those held by individual participants, on the emergence of the identified barriers. When referring to males and the impact that an increase in male complement might have on the profession, the assumption was that the males would be heterosexual. Multiple masculinities can exist adding a level of complexity to assumptions about changes around the sex composition of the profession. **Implications and Conclusions;** Attitudes and practices from within and outside the dietetic profession can influence career choice as well as influence how recruitment strategies are approached. What was said and not said with respect to student perspectives of males and masculinities within the profession suggests a recruitment strategy directed at increasing the number of males in the profession may be ineffective unless there is a clear vision of what the overall aim of the strategy would be. Further research based upon a more nuanced approach to the complex and interrelated issues associated with both sex and gender as they relate to professional composition is warranted.

Male students' perspectives on their food and nutrition education

S Beltran¹, L Garrett², J Gingras¹. ¹Ryerson University, Toronto, Ontario, ²Acadia University, Wolfville, Nova Scotia. [R]

Objectives: There is little understanding of men's experiences as a minority group in dietetics. The purpose of this pilot study was to examine male students' perspectives of their food and nutrition education experiences to identify issues related to education and retention that require further study. **Methods:** Male students recruited via posters placed at Ryerson University to complete a 12-item survey. **Results:** Four male students aged 23-25 years completed the survey. Participants had personal interests in nutrition, which led them to pursue their education in nutrition. One student was particularly interested in changing his own dietary change while two were interested in their own weight loss. Two students perceived their minority status as an advantage because they "stood out" to professors. Three participants' aspired to become dietitians upon entering the program. During their education, students became aware of alternate career options including food service management. One student felt his minority status would offer an advantage during the internship application process. A student expressed that the lack of diversity in the field gave the impression that the profession is "feminine" and felt that having successful male dietitians as role models would encourage recruitment of more men into the program. **Implications & Conclusions:** Understanding male students' perspectives has the potential to enhance recruitment of more men into dietetics as well as retention of those men, which could lead to a more diverse profession. Larger mixed-method studies to examine the gendered aspects of dietetics education and practice are forthcoming.

Evaluation of the acceptability and feasibility of the multi-mini interview format for dietetic intern selection

*C Brissette*¹, M Keith¹. ¹St. Michael's Hospital, Toronto, ON [R].*

Objectives: Several dietetic internship (DI) programs have trialed the multi-mini interview (MMI) for candidate selection, following its documented success in other health disciplines. However, its suitability

for dietetics requires evaluation. The MMI was trialed with recent applicants to St. Michael's Graduate DI program. Candidate and interviewer perceptions were evaluated to determine acceptability and for quality improvement purposes. **Methods:** Forty applicants were interviewed in groups of 4, with one hour allotted per group. Candidates rotated through 4 themed stations and answered standardized questions. Three of the stations had the same interviewer for all sessions. After completing the circuit, candidates attended a group question and answer period with program directors and current interns. One week post-interview, interviewees and interviewers were sent an online questionnaire of open- and closed-ended items regarding the MMI. **Results:** The response rate was 83% (n=33). Overall, candidates were satisfied with the MMI (mean 6.9± SEM 0.33 on a 10-point scale), with 49% rating it 8/10 or higher. Further, 76% felt the MMI reduced anxiety compared to a traditional interview, with each station offering a "fresh start". Only 3% of respondents disliked the MMI, stating: "it doesn't allow me to warm up like a traditional interview". Amongst interviewers, satisfaction with the MMI was high (8.3/10 ±0.25). Interviewers felt the MMI evaluated candidates' nutrition knowledge and was more fair (8.5/10 ±0.48). Adopting the MMI saved approximately 80 labour hours. **Implications & Conclusions:** Implementing the MMI improved efficiency by preserving financial and human resources. Fairness was also enhanced, as this format permitted consistency of interviewers across sessions. To validate the MMI for DI selection, research linking interview results with future performance is needed.

Putting health literacy into practice through a dietetic internship program

T Hutchings and H Toews, Hamilton Health Sciences, Hamilton, Ontario. (E)*

Purpose: To describe the experience of a dietetic internship program that has integrated health literacy into the curriculum. **Content:** As a strategy to improve the health literacy skills of health professionals in Canada, the Report of the Expert Panel on Health Literacy www.cpha.ca/en/portals/h-l/panel.aspx recommends making health literacy a mandatory component of service provider curricula, professional continuing education and professional registration and certification. The Hamilton Health Sciences dietetic internship program contributes to the implementation of these recommendations as the curriculum includes two educational experiences designed to improve the health literacy skills of its dietetic interns; a health literacy workshop and completion of a nutrition patient education project. The learning objectives include; define health literacy and its related implications to practice; evaluate the health literacy barriers that may exist in practice; learn and apply health literacy strategies. Effectiveness of the health literacy components of this program are measured in terms of competency assessment, nutrition patient education project completion and student evaluation. **Project summary:** Over the last 10 years, the dietetic interns have consistently rated the health literacy components of the program as beneficial; they learn about health literacy and are able to apply health literacy strategies such as, clear verbal communication, plain language and clear design. The advisory dietitian to the nutrition patient education project also benefits as the created patient education resource supports their teaching, is evidenced-based and easy for patients and families to read, understand and use. **Recommendations and Conclusions:** The success of this program provides a best practice model for dietetic internship programs across Canada and contributes to the implementation of the 2008 Report of the Expert Panel on Health Literacy.

Unveiling the emotional distress of not attaining a dietetic internship in Ontario

*JL Brady¹, A Hoang², O Siswanto³, J Riesel^{*3}, J Gingras³. ¹Queen's University, Kingston, ON, ²Etoicoke Medical Centre Family Health Team, Toronto, ON, ³Ryerson University, Toronto, ON. [R]*

Objectives: Obtaining dietetic licensure in Ontario requires completion of a Dietitians of Canada (DC) accredited undergraduate degree in nutrition and an accredited post-graduate internship or combined master's degree program. The scarcity of internship positions in Ontario left approximately two-thirds of the eligible applicants unmatched (Brady, Hoang, Tzianetas, Buccino, Glynn, and Gingras, in press). Anecdotally, not securing an internship position is known to be a particularly disconcerting experience

that has significant consequences for individuals' personal, financial, and professional well-being. However, no known research has captured the voices of these unsuccessful applicants. The purpose of this study was to explore the lived experiences of applicants' who apply for a dietetic internship in Ontario and who are unsuccessful at least once. **Methods:** Fifteen women who applied between 2005 and 2009 to an Ontario-based dietetic internship program, but were unsuccessful at least once, participated in a one-on-one semi-structured interview. Participants were recruited through Ontario university listservs, the DC Student Network, Ontario Home Economists in Business, and word-of-mouth. **Results:** Participants' experiences unfold in four successive phases that are characterized by increasingly heightened emotional peril: 1) Naïveté prior to entering the program until the second year of study; 2) Competition among peers that became intensified during the internship application process; 3) Devastation upon receiving the internship selection results; 4) Frustration about the uncertainty of their future career. **Implications & Conclusions:** The current model of dietetic education and training in Ontario causes lasting distress to applicants and hinders the future growth and vitality of the dietetic profession. Recent research with internship coordinators and even successful applicants indicates that the current model for dietetic education and training in Ontario has caused harm to some for the years it has been in existence. Further research is required as to why this model remains.

Online advanced practice Master of Science (MS) in Clinical Nutrition program for Registered Dietitians

*R Zelig¹, L Byham-Gray¹, R Touger-Decker¹, R Brody¹, J Ziegler¹, D Rigassio Radler¹, JS Parrott¹.
¹University of Medicine and Dentistry of New Jersey-School of Health Related Professions, Newark, New Jersey, USA. [E]*

Purpose: To share an outcomes-oriented approach to online advanced practice graduate education for Registered Dietitians (RDs). **Content:** The Masters of Science in Clinical Nutrition (MSCN) program is a web-based program with a global reach. Of those currently enrolled, 8.8% represent Canada, Asia and the Middle East. The program faculty use a variety of technologies integrated with a distance learning platform. Programmatic assessments include surveys of student learning outcomes and competencies. **Project Summary:** An internet-based alumni outcomes survey was sent to 94 graduates from 1996 to 2011 via SurveyMonkey. Alumni respondents (n=50) rated their self-perceived attainment of program competencies using a Likert-type scale (strongly disagree to strongly agree). The majority of alumni agreed / strongly agreed that they were competent to design and conduct dietetics research (n=44, 88%), evaluate and apply research evidence into clinical practice (n=47, 94%), assume roles as "upskilled" practitioners (n=41, 82%), establish nutrition practices for disease prevention and management (n=44, 88%) and collaborate with an interprofessional health care team (n=46, 92%). Eighty-six percent (n=43) agreed / strongly agreed that they were able to utilize effective management, leadership and information technology skills to guide dietetics practice. **Recommendations & Conclusions:** Findings indicate that alumni perceived that they are achieving program competencies. The use of technologies by this program provides opportunities for RDs around the globe to achieve competencies to advance practice.

Creation of an interfaculty undergraduate interprofessional collaboration (IPC) curriculum for health and psycho-social sciences students at Université de Montréal

M-C Vanier, C Besner, L Boulanger, I Brault, V Dumez, É Drouin, R Gareau, F Guérin, P Lebel, D Lefebvre, H Lefebvre, M-J Levert, J Montreuil, F Nolin, A Pullen-Sansfaçon, L St-Denis^{}, P-Y Therriault.
Interfaculty Operational Committee (IOC), Université de Montréal, Montréal, Québec. [E]*

Purpose: Efficient provision of care involves interdependency between professionals, families and patients and requires collaboration. In order to prepare students to this reality, our university developed an undergraduate interfaculty IPC curriculum. **Project Summary:** A 2008-2009 pilot project showed relevance and feasibility of interprofessional educational (IPE) activities in a large cohort. Following this project, deans of four faculties (Arts and Sciences, Medicine, Nursing and Pharmacy) agreed to create three mandatory one credit IPC courses shared by 10 programs in health and social sciences. CSS

(collaboration en sciences santé) courses were included in each cursus of participating programs. The IOC is composed of professors from each program and is responsible for development, coordination and evaluation of these courses. The IOC is supported by a coordinator and an Interfaculty Students Advisory Committee. Courses implemented in 2010-2011, are structured as follows: A) on-line preparatory modules; B) intradisciplinary preparatory activities; C) interdisciplinary workshop. Main topics covered are : principles of collaboration, team meetings, principles of IPC, collaborative practice and conflict prevention. Workshops used a small group discussion format. Inclusion of an expert-patient was tested in some groups and was positively received by students. **Recommendations & Conclusions:** Support of deans, dedication of faculties' champions (IOC members) and efficient support of a coordinator allowed implementation of a joint interfaculty curriculum. Next steps are: 1) assess impact of IPC curriculum; 2) refine evaluation methods; 3) integrate expert-patient in groups; 4) integrate additional disciplines.

Learning and socialization experiences of Black Canadian students in nutrition and food undergraduate programs

M Osman¹, E Vettese¹, A Cuddy^{}, J Gingras¹. Ryerson University, Toronto, ON. [R]*

Objectives: Studies conducted of African American undergraduate dietetic and non-dietetic students have revealed a myriad of beliefs held by students in regards to pursuing a career in the dietetic field. These perceptions included the need to possess a certain physical appearance or body size and to follow "healthy" eating patterns which were deemed to be irrelevant or at odds with beliefs traditionally held by African American communities (Felton et al., 2008). The experiences of Black Canadian students would expect to mirror that of their African-American counterparts, but Black Canadian students have garnered little research attention. This study aimed to explore whether similar phenomenon occur within the Canadian context in addition to gaining an understanding of the learning and socialization experiences of Black Canadian students. **Methods:** A literature review was conducted using the EBSCO host database. Phrases searched included black nursing students, black dietetic students, black Canadian university students and diversity in dietetics. **Results:** Several studies were found highlighting the learning and socialization experiences of black students in U.S and Canadian nursing schools. The literature also included one study focusing on views of dietetics held by black students in non-dietetic majors as well as that of black dietetic students. **Implications and Conclusions:** The literature search revealed a gap in knowledge about the experiences of Black students in Canadian nutrition and food programs. This research study is needed to explore the enhancers and barriers to success for Black students as they develop their identities as food and nutrition professionals.

Exploring perceptions of mental health and illness among nutrition students

E Ng¹, J Okafo², S Mitchell^{1}, J Gingras².¹Canadian Mental Health Association Ontario, Toronto, Ontario.
²Ryerson University, Toronto, Ontario. [R]*

Objectives: One in five Canadians will experience a mental illness in their lifetime. Dietitians will inevitably find themselves involved in the care of someone with a mental illness. It is essential that dietitians be adequately prepared to service this client population. There is also a need to explore mental health self-care in nutrition students as they prepare to enter a workforce that is faced with multiple demands and pressures. To date, there has been no research conducted on this topic in dietetics. The purpose of this systemic literature review was to summarize current literature on the perceptions of mental health and illness, and mental health literacy education among students in health professions. The results will inform education and further research. **Methods:** A systematic literature review was conducted using the following databases: Nutrition and Food Sciences, Academic OneFile, and Proquest Research Library. Searches were conducted using the following search terms: perceptions, attitudes, mental illness, students, health professions, and mental health literacy. **Results:** Current literature revealed several studies on mental health literacy among undergraduate students in medicine, pharmacy, and nursing. Some studies have shown reduction in mental health stigma and improved confidence of students in providing care to patients with mental illness after attending mental health training. **Implications & Conclusions:** Our literature review indicated a gap in knowledge related mental health curriculum in dietetics. Further research is needed to better understand dietetic students' perceptions

toward mental illness and awareness of mental health self-care. Engaging students about the connections of mental health and nutrition, and providing students with training can promote readiness for the demands of dietetic education and practice.

Answering practice-based questions: demystifying systematic literature reviews

T Marcoux, K Loney^{}. Bariatric Regional Assessment and Treatment Centre (RATC), Health Sciences North, Sudbury, Ontario. [E]*

Purpose: The emergence of bariatric nutrition and the opening of the RATC in Sudbury present several firsts; consequently there remain several practice-based questions to be answered. A systematic literature review is a structured process to gather and critique research to inform practice. As clinical dietitians unfamiliar with this process, dietetic interns were assigned to examine the evidence while dietitians provided support as research preceptors. **Process or Content:** A preliminary literature search on conducting systematic reviews was completed. Experts in the field were also consulted. Resources were reviewed for their usefulness for educating and guiding the interns' learning process. Information determined to be useful was documented ensuring the process could be utilized by future interns or dietitians to answer similar practice-based questions. **Project Summary:** Several articles and resources regarding evidence-based practice were available. Tutorials and on-line courses, such as the Public Health Agency of Canada's free self directed module "Introduction to Literature Searching" were helpful to describe the resources available. The Practice-based Evidence in Nutrition (PEN) writer's guide was chosen as a primary resource due to its relevance to the dietetic field. The steps taken to initiate the systematic literature review included: choosing a specific research question using PICO (population, intervention, comparison, and outcome); selecting key search terms; identifying inclusion and exclusion criteria; selecting databases; considering methods of collecting grey literature; saving or recording the search strategy and references; and choosing appropriate evidence grading checklists.

Recommendations & Conclusions: The project's process provides a clear and concise methodological framework for using the evidence to answer practice-based questions. We recommend any dietitian undertaking a similar research project to utilize the resources found in the PEN Writer's Guide.

ORAL RESEARCH PRESENTATION ABSTRACTS - FRIDAY JUNE 15, 2012

Validation of a prioritization matrix for registered dietitians uses in the gastroenterology and general surgery inpatient wards.

*F Press^{*1}, A. Lay², C. Wong², PB Darling², D Whitham³, C. Gandolfi¹*

¹Specialized Complex Care Program, ³Professional Practice and ²Li Ka Shing Knowledge Institute of St. Michael's Hospital, ²Dept of Nutritional Sciences, University of Toronto, Ontario [R]

Objectives: To evaluate the usefulness of a prioritization matrix (PM) screening tool used by Registered Dietitians (RDs) in Gastroenterology and General Surgery (GEGS) ward. PM classifies patients according to diagnosis, age and diet order into 3 nutrition care levels– NCL I (high risk), NCL II (moderate risk), and NCL III (low risk). **Methods:** This is a cross-sectional, observational study of patients admitted under the GEGS service at St. Michael's Hospital from January to June 2011. The prevalence of malnutrition in NCL III (n=35) patients was determined using Subjective Global Assessment (SGA). Nutritional status data for NCL I and II patients (n=49) were extracted from patients' chart retrospectively. The proportion of malnourished patients in NCL III versus NCL I+II was compared. Using SGA as the reference tool for identifying malnutrition, sensitivity and specificity of PM were determined. PM was also compared with Malnutrition Screening Tool (MST). **Results:** Of the eighty four patients enrolled (56.2±17 years old, BMI 25.3±8kg/m²) 58% were malnourished (SGA B or C). Although the proportion of malnourished patients

was significantly higher for NCL I and II (67%, n=49) compared to NCL III (46%, n=35), the MST had a higher sensitivity and specificity in detecting malnutrition compared to the PM (82% and 97% vs. 67% and 54%, respectively). **Implications:** An unacceptably high proportion of malnourished patients were designated as low risk using the PM. **Conclusions:** The PM may not be the optimal tool when used independently by RDs for identifying potential malnutrition in patients admitted under the GEGS service. Further study is needed to determine if the PM could be improved by adding the MST.

Pharmacist-dietitian collaborative TPN service pilot project at an acute care hospital

*T Cividin^{*1}, E Cabrera¹, K Koo¹. ¹Vancouver General Hospital, Vancouver, BC. [E]*

Purpose: To evaluate the effectiveness of a Pharmacist-Dietitian Collaborative Service and Pharmacist Prescriptive Authority on re-ordering and changing total parenteral nutrition (TPN) orders without physician verbal orders on the General Surgery service at Vancouver General Hospital (VGH). **Process or Content:** A pilot project was conducted from June to September 2011. Prior to and during the pilot, data was collected on dietitian and pharmacy time spent on clarifying TPN orders, obtaining physician approval and sign off of TPN orders, and documenting incidents of TPN solution wastage. Additional data on physician acceptance rate of Pharmacy-Dietitian intervention orders and impact on patient care were collected. **Project Summary:** During the pre-pilot assessment, the time delay for Pharmacy to clarify orders was on average 86 minutes per order. The average dietitian time spent facilitating TPN changes was 15 minutes per order. During the pilot, we noted increased efficiency of re-ordering TPN. Pharmacy production time delays related to physician approval and order clarifications were eliminated as clarifications with the physician were no longer required. Dietitian time spent facilitating TPN changes was reduced by 5 to 10 minutes per order. Physician acceptance rate of intervention orders made by the pharmacist and dietitian was 99% and no adverse patient outcomes related to TPN order changes were noted. In addition, the number of incidents of wasted TPN solution bags declined during the pilot period by an average of 27.7%. **Recommendations & Conclusions:** A Pharmacist-Dietitian Collaborative TPN Service resulted in increased efficiency in processing TPN changes and decreased wastage of TPN solutions on the General Surgery service at VGH. Given the favourable results, the plan is to expand the model to all services at VGH.

The experiences of advanced head and neck cancer patients registered in the Odette Cancer Centre program in living with a percutaneous endoscopic gastrostomy tube

J. Kwong, E. Posluns, E. Stokes, K. Vandenbussche, A. McAndrew, M. Fitch, Sunnybrook Health Sciences Centre, Toronto, Ontario. [R]*

While the percutaneous endoscopic gastrostomy (PEG) tube has become an established part of the management regimen for head and neck cancer patients with impaired nutritional and functional status, limited research has explored the impact and experiences of living with a PEG tube from the patient's perspective. **Objective:** This qualitative study was undertaken to describe the experiences of advanced head and neck cancer patients in living with a PEG tube. **Methods:** Convenient sampling was used to recruit study participants. Eligible patients were invited to participate until data saturation was reached. In-depth interviews were conducted with consenting participants. Each interview was audio recorded and transcribed verbatim. Qualitative descriptive design guided the content analysis of the interview transcripts. **Results:** Of the 50 patients invited, a total of 16 participants, 13 men and 3 women (mean age = 61, range 44-77), consented to participate. Each interview was 15 to 90 minutes in length. 22 content codes were identified. These content codes present a full picture of the progressive experience of a patient's journey with the PEG from the initial decision making process around the tube's insertion through to its removal. Difficulty swallowing and weight loss emerged as primary factors for PEG insertion. Participants became accustomed to living with the tube. As participants relearned the act of chewing and swallowing, they gradually transitioned back to a complete oral diet. All participants recognized the value of the tube, and most participants considered it necessary for their survival.

Implications: These results can lend support in the decision making process for future PEG tube candidates.

Dietary vitamin E intake during the second trimester and insulin resistance and hyperglycemia later in pregnancy

*SH Ley^{*1}, AJ Hanley¹, DL O'Connor^{1,2}. ¹University of Toronto, ²The Hospital for Sick Children, Toronto, ON. [R]*

Objectives: Maternal metabolic changes in normal late pregnancy include the deterioration of insulin sensitivity. Vitamin E induces the expression of insulin sensitizing hormone, adiponectin, in an animal model. Reports on the association between vitamin E and insulin sensitivity, however, have been inconclusive, and the data in pregnant population are lacking. We aimed to investigate whether dietary intake of alpha-tocopherol during the second trimester was associated with glucose metabolism later in pregnancy. **Methods:** Women with singleton pregnancies and without pre-existing type 1 or type 2 diabetes were included. Participants (n=205) underwent a 3-hour oral glucose tolerance test (OGTT) at 30 (95% CI: 25-33) weeks gestation and were asked to recall their second trimester dietary intake using a validated food frequency questionnaire. Insulin resistance and sensitivity were determined using homeostasis model assessment and Matsuda insulin sensitivity index. **Results:** Daily dietary intake of alpha-tocopherol was 7.9±3.1 (mean±SD) mg. Higher alpha-tocopherol intake was associated with lower glycemia (beta±SE: -0.059±0.027, p=0.03), lower insulin resistance (-0.140±0.058, p=0.02) and higher insulin sensitivity (0.053±0.023, p=0.02) with adjustment for age, ethnicity, and daily energy intake. Higher alpha-tocopherol intake remained significantly associated with lower glycemia (-0.078±0.027, p=0.005), lower insulin resistance (-0.141±0.051, p=0.007), and higher insulin sensitivity (0.046±0.021, p=0.03) with additional adjustment for prepregnancy BMI, % calorie intake of total fat, vitamin E supplementation, gestational weeks at the time of OGTT, and serum adiponectin concentration. **Implications & Conclusions:** Lower dietary vitamin E intake during the second trimester is associated with hyperglycemia and insulin resistance later in pregnancy. This finding supports the need for continued work to determine gestational dietary strategies to maintain optimal glucose homeostasis during pregnancy.

Post-gestational diabetes: patient perspectives on the organization of health services

J Johnson¹, P Brauer¹, T Fitter^{2}, A Waugh^{3*} University of Guelph¹, Guelph, ON, Groves Memorial Community Hospital², Upper Grand Family Health Team³, Fergus, ON [R]*

Objectives: To gather information on the thoughts and ideas of women with a previous GDM diagnosis on the organization and structure of T2DM prevention services. This qualitative study was undertaken as part of a larger project. **Methods:** Women with a previous diagnosis of GDM were identified from medical records. A total of 30 patients met the criteria and were invited to participate by mail, 10 women accepted. A single 60 minute focus group of 10 participants was facilitated with a professional moderator. Five predetermined questions were constructed using the Ottawa Model of Research Use, to identify perceived gaps and barriers in postpartum care. The session was audio taped, transcribed and opinions thematically analyzed. **Results:** Participants' responses revealed themes on the organization of health services: receipt of conflicting messages; the challenge of competing priorities; apprehension about the post partum diabetes test; lack ongoing moral support; difficulty applying knowledge to sustain behaviour change. Identified needs included: a child-friendly environment and additional skill based resources. They recommended merging community and health services with follow-up testing; and restructuring of services as a group support format. The participants recognized that any format could be effective provided it was more accessible and felt face-to-face contact was important. **Implications & conclusions:** Future development of services should engage community resources in planning, development and implementation. The format of the services offered is key. Women with young children require care that is child friendly, flexible and optimizes the use of their limited time to support their own behaviour change and long-term health. Funded in part by PHAC.

Psychometric properties of the Breastfeeding Self-Efficacy Scale Short-Form: the Alberta Pregnancy Outcomes and Nutrition Study (APrON)

A P Farmer^{*1,2}, M Jessri¹, and the APrON Study Team. ¹Human Nutrition Division; ²The Center for Health Promotion Studies; University of Alberta, Edmonton, AB [R]

Objective: Evidence suggests there is a prominent role for confidence and self-efficacy in maternal breastfeeding behaviour and cognition. The aims of this study were to: I) test the psychometric properties of the Breastfeeding Self-Efficacy Scale Short-Form (BSES-SF), and II) examine parental characteristics and infant feeding practices associated with the BSES-SF scores at 3 and 6 months postpartum.

Methods: Of the 600 pregnant women recruited in the first phase of the Alberta Pregnancy Outcomes and Nutrition (APrON) study, 356 and 176 eligible breastfeeding mothers were followed to 3 and 6 months postpartum, respectively. Data were collected on a range of socio-demographic, behavioural and biomedical characteristics and the BSES-SF structure was evaluated using exploratory factor analysis (EFA). **Results:** The Cronbach's alpha coefficient for BSES-SF was 0.91, and the EFA procedure resulted in the theorized one-factor solution. Multiparous women with lower pre-pregnancy weight and those with Caucasian partners had higher BSES-SF scores, compared to their peers ($p < 0.05$). There was a significant correlation between BSES-SF scores at 3 ($r = 0.29$) and 6 months ($r = 0.17$) postpartum and the Iowa Infant Feeding Attitude Scale score during pregnancy, which is a theoretically-related construct. The predictive validity of the BSES-SF was demonstrated through the significantly higher BSES-SF scores at 3 and 6 months among mothers who exclusively breastfed compared to those who practiced non-exclusive breastfeeding ($p < 0.05$). **Implications & Conclusion:** The BSES-SF provides a valid and reliable measure for specifically differentiating between mothers who exclusively breastfed and those who did not. This instrument may be useful for informing targeted breastfeeding interventions to help new mothers achieve their breastfeeding goals.

Financial Support: This study was supported by a research grant from "Alberta Innovates-Health solutions", Alberta, Canada. M.J. is funded by "2011 Dr. Elizabeth A. Donald M.Sc. Fellowship in Human Nutrition" and "Professional Development Grant" from the "University of Alberta Graduate Students' Association".

The integration of chronic disease prevention and management: Dietitian's perspectives regarding diabetes management in adult peritoneal dialysis programs in Ontario.

C. Vaillancourt^{*1}, E. Vogel², J. Percival², J Wilson². ^{1,2}University of Ontario Institute of Technology, Oshawa, Ontario.[R].

A Chronic Disease Prevention and Management (CDPM) approach to care is health care services that are collaborative and seamless. The CDPM approach to care has become the focus of health care providers and governments in an effort to reduce the burden of chronic disease on the healthcare system and to improve client outcomes. Many peritoneal dialysis (PD) clients also have a diagnosis of diabetes.

Objectives: There is currently a paucity of data regarding how diabetes is managed in PD programs. Dietitians play a key role in the management of diabetes and PD as both of these chronic conditions require dietary modifications. **Methods:** This web-based survey, utilized purposeful sampling, collected data from dietitians (N=18) with dietetic practices in adult PD programs to examine how CDPM had been integrated into PD programs. Data was collected on the demographic characteristics of PD clients, program models, and program-specific data regarding facilitators and barriers related to the provision of dialysis-specific diabetes care. Statistical analysis was completed and responses to open-ended questions examined using thematic open-coding. **Results:** Findings identified three major themes: "walking the CDPM talk", dietitians as "unrecognized CDPM champions" and "the missing pieces of the DPM puzzle". While many dietitians have embraced CDPM, barriers exist which affect dietitians abilities to fully and formally integrate CDPM. **Implications:** The capacity of dietitians to integrate CDPM into their practices may be limited by their level of professional experience, practice setting (group versus sole practitioner), lack of access to professional development and lack of support from the PD team in regards to roles and responsibilities related to diabetes management

Shifts in food narratives of women with chronic kidney disease and their primary eating companions

T Lewis^{*1}, A Fitzpatrick¹, C Bloch², K Vandebussche¹, C Morley³, J Gingras². ¹Sunnybrook Health Sciences Centre, Toronto, ON. ²Ryerson University, Toronto, ON, ³Acadia University, Wolfville, NS. [R].

Objectives: The purpose of this project was to further understand the psycho-social implications of changing one's food intake for medical reasons among women living with chronic kidney disease, and the individuals with whom these women most often shared food. **Methods:** In this qualitative pilot study, researchers explored the food selection, preparation, consumption and feeding experiences of women living with chronic kidney disease who were not on dialysis. Through in-depth semi-structured interviews, we explored how significant dietary intervention by dietitians could potentially alter women's perceived identities and roles with eating and feeding responsibilities, and how these identities, roles and food experiences were renegotiated with the participants' usual eating companion(s). Participants' and companion's narratives were categorically coded and then situated within Morley's *Eating and Feeding with Changed Health Status* framework (2002). **Results:** Women often define themselves through various acts associated with food and nurturing. As the different dimensions of their identities become complicated or renegotiated through the experiences of chronic disease, women find their relationships with food, others, and themselves significantly altered. **Implications & Conclusions:** Increasing awareness within dietetics about the psycho-social aspects of food and dietary change has the potential to enhance client-practitioner relationships, nutritional care outcomes, and the effectiveness of dietetic practice.

Dancing across the generations: a creative approach to achieving competency in management and administrative areas of dietetic education

R Tzianetas¹, D Lyons^{*1}, K Hamilton¹, E Opperman¹, L Baker^{*1}, S Becker¹, M Hiis¹, J Soguel¹, J Libman¹, A Cuddy². ¹Mount Sinai Hospital, Toronto, Ontario, ²ARAMARK Canada, Toronto, Ontario. [E]

Purpose: To create alternative management and administrative competency attainment projects for dietetic interns. **Process and Project Summary:** In order to illustrate that competencies can be attained via different methods, dietetic interns at Mount Sinai Hospital in Toronto planned a flash mob dance for the opening event of 2012 DC annual conference as a metaphor for intra-professional collaboration. Four core management-related activities formed the basis of the project, which were: planning, marketing, recruitment and evaluation. Competencies attained included: Developing, with appropriate others, plans of action for managing community action, the marketing of programs and human resources (e.g. recruiting, orienting, training, supervising, and scheduling); Communicating appropriately and effectively to individuals or groups; Using appropriate communication channels and technology (e.g. written, verbal, telephone, e-mail, PowerPoint); and Managing time effectively by setting priorities and realistic deadlines. An attitude survey exploring the expectations of dietetic interns in management and administrative rotations was taken at the start of their program and will be re-administered upon program completion for comparison. **Recommendations & Conclusions:** In order for new graduates of dietetic internship programs to remain competitive in an evolving marketplace, internship program coordinators should seek creative ways for interns to attain competence in management and administration, particularly where staffing resources are limited. Results of the intern attitude surveys will shed light upon the beliefs, perceptions and experiences of dietetic trainees participating in unconventional management and administrative training activities.

Providing choices and preferences: making mealtimes more person-centred in long term care homes

H Reimer^{*1}, H Keller², L Schindel Martin³, D Lero¹. ¹University of Guelph, Guelph, ON, ²University of Waterloo, Waterloo, ON, ³Ryerson University, Toronto, ON [R]

Person-centred care is a holistic approach to enhance quality of life for residents in long term care, especially those living with dementia. One aspect of making mealtimes person-centred is providing food choices and preferences. **Objectives:** This study examined current implementation of person-centred mealtime care, the influences on its implementation, and steps to more fully adopt this approach. **Methods:** Semi-structured interviews were conducted with 52 staff from four diverse long term care homes in southern Ontario. Participants included frontline workers, registered health care professionals, and managers. Interviews were transcribed and analysed for themes. **Results:** Participating homes aimed to tailor their menus to meet the residents' needs and preferences. Frontline staff used knowledge of the residents' preferences and specific strategies to help residents make food choices or select items for them if necessary. Areas for improvement included: using food preference lists to their full potential, increasing food options available, expanding frontline workers' knowledge of strategies to help residents make choices, and reducing time pressures on staff to help ensure that residents' special requests and known preferences can be met. **Implications & Conclusions:** A conceptual framework was developed through this study to help dietitians and food service managers identify how to help staff make mealtimes more person-centred. Elements of this framework are: ensuring staff know the residents well, equipping them with a 'toolbox' of strategies, creating flexibility to optimize care, developing better ways of working together, and building a strong team that includes the help of residents' family members and volunteers. Funded by the Canadian Foundation for Dietetic Research and the Alzheimer Society of Canada.

Interdisciplinary integration of omega-3 fatty acid research findings into dietetic practice

C Yan^{1,2*} and C Morley¹. ¹Acadia University, Wolfville, NS and ²Ocean Nutrition Canada, Dartmouth, NS [E]

Purpose: The purpose of this project was (as a polymer research scientist working in industry on omega-3 fatty acids and then undertaking an undergraduate dietetics program) to integrate knowledge of omega-3 fatty acids from multiple disciplines into dietetic practice, in particular, regarding consumer-focused nutrition advice. **Process or Content:** A thorough review of the literature of the past five years on omega-3 fatty acids was conducted with the view of incorporating findings about their chemical-physical properties, protection technologies, bioavailability, metabolic pathways, clinical evidence, consumer attitudes, average intakes, and regulatory requirements to clinical evidence. **Project Summary:** A conceptual framework was developed that integrated the findings from the literature review in a way that went beyond each individual field of study to devise approaches to consumer messaging about omega-3 fatty acids. The framework outlined how protection technologies impact their properties and bioavailability, which in turn, have the potential to influence clinical trial outcomes and health benefits. Protection technologies refer to the manner in which omega-3 fatty acids derived from fish oils are encapsulated (e.g., in capsule form) and microencapsulated (in powder form as an ingredient) to preserve fatty acid qualities. **Recommendations and Conclusions:** Interdisciplinary integration gives a more profound and comprehensive view of omega-3 fatty acids to facilitate more logical understanding of their clinical trial outcomes and health benefits, and generates appropriate and client-centered recommendations.

We are not so different after all: Comparative analysis of two dietetic internship program logic models

R Tzianetas^{*1}, M Keith². ¹Mount Sinai Hospital, Toronto, Ontario, ²St. Michael's Hospital, Toronto, Ontario. [E]

Purpose: To conduct a comparative analysis of two individual Toronto-based dietetic internship programs using a logic model. **Methods:** As part of a graduate health program planning and evaluation course at the University of Toronto, two internship coordinators completed a logic model highlighting the overall

program for their respective dietetic internship program. **Process:** The logic models were developed with the following content: a description of the program goals and objectives, program activities, indicators, short and long term goals and lastly resources. Logic models were evaluated using comparative analysis. Codes were grouped into categories and studied for thematic connections (Penrod et al, 2003). **Project Summary:** Comparison of similarities and differences between the logic models resulted in a description as to how these two programs are structured in meeting the overall goals and objectives. **Recommendations & Conclusions:** A logic model helped to identify similarities and differences between two dietetic internship programs in Toronto. The most interesting difference between the programs was how each program is 'framed' differently and the types of resources that are required to operate these complex programs. The logic model allows for an objective review and comparison review of programs.

Dietitians in Canada: supply and graduate trends

*J Goulet^{**1}, L Wang¹, Y Léger¹. Canadian Institute for Health Information, Ottawa, Ontario. [R]*

Objectives; There is an increasing demand for dietitians to play a leadership role in the management of chronic diseases and the development of health policy. Health human resources planning ensures that health services offered by dietitians are available for all Canadians. The purpose of this study is to examine supply and graduate trends of dietitians in Canada from 1995 to 2009. **Methods;** The Health Personnel Database (HPDB) from the Canadian Institute for Health Information is a national database that maintains information on 24 health occupations in Canada. This study looks at dietitian supply, demographic and graduate trends using 1995–2009 HPDB data. **Results;** In 2009, there were 9,369 registered dietitians in Canada, an increase of 50% over the past fifteen years (1995-2009). Almost 95% registered dietitians in 2009 were female. The proportion of dietitians per 100,000 Canadians was 21 in 1995 and rose to 28 in 2009. This represents approximately twice the growth rate of the Canadian population for that period. Moreover, 468 students graduated from a dietetic program in 2009 compared to 339 in 2000. There were 1.4 graduates per 100,000 Canadians in 2009. This proportion grew by 26% in 10 years, equivalent to 2.6 times the growth of the population. Between 2000 and 2009, the proportion of graduates remained stable in Newfoundland and Labrador (3%) and decreased by 36% in New-Brunswick. The proportion of graduates rose in the remaining provinces where the ratio grew by 10% in Quebec to 93% in Prince Edward Island. **Implications & Conclusions;** The dietitian workforce in Canada continues to grow. Monitoring trends will provide valuable information to inform effective health human resources planning for dietitians now and in the future.

Graduate tracking survey for the Northern Ontario Dietetic Internship Program: pilot project

B Minore¹, M Hill¹, D Raftis^{2}, ¹Centre for Rural and Northern Health Research, Thunder Bay, Ontario, ²Northern Ontario School of Medicine, Sudbury, Ontario.[R]*

Objective: The Centre for Rural and Northern Health Research at Lakehead University piloted a tracking survey for graduates of the Northern Ontario Dietetic Internship Program (NODIP), which is administered through the Northern Ontario School of Medicine. The objective of this study was to assess the feasibility of using a questionnaire to track graduates' subsequent employment experiences and their perceptions of the internship as preparation for practice. **Methods:** In April 2010, the pilot questionnaire was distributed to the first cohort (2008-09). **Results:** Ten (100%) of the graduates completed the survey. Results, analyzed categorically, showed all of the NODIP graduates found employment during internship or shortly thereafter. Seven eventually obtained full-time positions; however, working for more than one employer was common. Approximately 20 months after graduation, nine were working with agencies serving rural or northern communities. Employment facilitators included opportunities for professional development, professional supports and interprofessional practice, as well as positions in preferred practice areas; proximity to family and friends and community lifestyle were also important. Retention barriers included lack of permanent positions and limited prospects for enhanced salaries, better working conditions and professional growth; family reasons, e.g. partner relocation, also adversely affected retention. Overall, NODIP graduates felt well prepared and confident for entry-level practice in clinical, community and

management practice settings. **Implications and Conclusions:** The questionnaire was found to be feasible for tracking purposes and, with slight modifications, was administered to the 2009-10 cohort in June 2011. Additional improvements, including elaboration of management or gender-related practice issues, will be considered.

Reflections on perceived preparedness of dietetic internship graduates following entry into practice

*M Keith^{*1}, C Brissette¹, P Darling¹. ¹St. Michael's Hospital, Toronto, ON [R].*

While most dietetic internship programs conduct evaluations immediately following program completion, little information is available on graduates following entrance into practice. **Objective:** To collect data on the level of perceived preparedness of our program graduates of our DI following their entrance into practice and to identify any gaps or opportunities for program improvement. **Methods:** A self administered questionnaire composed of both open and closed ended questions was developed and face validated by a sample of employers (n=12) and registered dietitians (RDs) (n=8). Questions were based upon the entry level competencies for practice. DI graduates from 2007-2010 were sent the link for the online questionnaire. Graduates were also asked for consent to send a similar survey to their current employer. **Results:** Of 30 eligible graduates, 60.0% responded which were evenly distributed across graduation years. 94% were hired within three months of graduation. 75% of respondents were working as clinical dietitians, and 25% were working as community dietitians. 86.7% of graduates reported feeling well or very well prepared for practice. On average clinical and professional practice tasks were scored highest in terms of how graduates felt about preparedness (ratings above 4.5/5) and research related tasks such as using the research literature (4.2/5), making evidence based decisions (4.3/5) and engaging in practice based research (4.2/5) scored lower. Training gaps identified by 40% of respondents included community nutrition and management skill training. Of the eight employers who were identified and sent a survey, only one responded. **Implications & Conclusions:** Overall, graduates felt well prepared for entrance into dietetic practice. The identified gaps and suggested improvements have provided program management with important insights to guide future quality improvement initiatives.

“This is not what I expected!” Transition shock in dietetics.

*A. Cuddy¹, J. Gingras^{*2}. ¹Ontario Institute for Studies in Education, Toronto, ON, ²Ryerson University, Toronto, ON. [R].*

Objectives: Dietitians practice in ever-changing, complex work environments. It is important to assess preparedness for practice of new practitioners to determine gap areas in education and training relative to practice setting changes. In addition, ensuring, wherever possible, that career expectations of learners match the realities of practice is a strategy that can enhance human resource retention in dietetics.

Methods: An online descriptive survey was sent to dietitians in Ontario and Nova Scotia who were newly licensed between 2005 and 2010. Additional focus groups with participants were held in Ontario.

Results: 130 participants completed the online survey and results highlighted areas multiple areas of concern. Most often cited were poor knowledge and skills related to food, food preparation and food service with respondents suggesting that these skills had not received sufficient attention in their studies and practical training. Several clinical areas where new practitioners felt unprepared were identified. Although 93% of respondents described dietetics as a rewarding career, 24% stated that the work they were doing was not what they expected and 28% indicated their intent to leave the profession within the next five years for reasons other than retirement. **Implications & Conclusions:** The gap between what dietitians expect to do as new practitioners and what they actually do is referred to as “transition shock” (Kramer, 1974). Understanding transition shock can shed light on necessary training changes to more accurately reflect the realities of practice. It also has professional retention implications when dietitians decide to leave the profession because the reality of dietetic practice does not match their expectations. Further examination of transition shock in dietetics can lead to the development of mitigation strategies such as early career support and mentorship.

Reasons for leaving: dietitians share their experiences of exiting the profession

A Cuddy¹, A Good², J Gingras³. ¹Ontario Institute for Studies in Education, Toronto, ON, ²Sunnybrook Health Sciences Centre, Toronto, ON, ³Ryerson University, Toronto, ON. [R].

Objectives: Ontario's dietetic workforce is declining relative to population. Ontario now has the lowest per capita dietitian rate in Canada at only 21 dietitians per 100,000 population. Including current census data projections further lowers this rate to only 14 dietitians per 100,000. To ensure the profession remains relevant to Ontarians, drastic measures are required to increase numbers of dietitians within the workforce. One strategy involves encouraging retention within the profession. **Methods:** An online survey was sent via the College of Dietitians of Ontario to individuals who had resigned their license to practice between 2004 and 2009. Survey respondents were also given the opportunity to participate in semi-structured interviews. **Results:** Sixty-three respondents completed the survey and thirteen participated in interviews. General themes from both survey and interviews suggested that many dietitians were not happy with their decision to resign from the profession feeling that being a dietitian was (often surprising to them) a large part of their personal and professional identity. Although retirement was the most common reason cited for leaving, participants suggested that changes to professional categories within the College, amendments to fee structures and regulations related to professional development would have allowed them to continue in practice on a part-time basis, which they would have preferred. Participants who left practice earlier in their careers cited inadequate salary, lack of recognition, burnout, and lack of career opportunities within the profession as reasons for leaving. **Implications & Conclusions:** Information obtained from past members of the profession can provide insight into retention strategies that would prove instrumental in increasing numbers of dietitians in the declining (relative to population) Ontario workforce.

Evaluating dietetic educational development programming

R Hayhoe^{1*}, A Campbell^{1*}, J Buccino¹, K Vandebussche², ¹The Hospital for Sick Children, Toronto, ON, ²Sunnybrook Health Sciences Centre, Toronto, ON [R].

Objectives: Previously, dietetic interns in Ontario have been offered a supplemental lecture series coordinated by the Dietetic Educators Leaders Forum of Ontario (DELFO). These were intended to provide exposure to areas interns may not encounter within their respective programs. Over the years, concerns arose regarding accessibility for interns and limited human and financial resources. For future program planning, DELFO assessed the supplementary education needs of interns beyond the competencies. **Methods:** A review of the literature and a situational assessment were conducted. Electronic surveys were distributed to dietetic interns who graduated between 2008-2010. **Results:** A review of the literature regarding learning needs of healthcare students revealed stress management, career preparation, utilization of learner-centered methods, and provision of adequate support systems to be important in practicum education. 49 surveys were completed. 63.0% indicated they would benefit from a workshop discussing stressors and coping mechanisms. The majority of respondents found interactive teaching methods most effective. 65.3% and 42.9% attended DELFO core lectures and career day, respectively. 93.8% recommended core lectures for future students. Benefits included networking and exposure to areas of practice not seen in internship. 90.5% suggested continuing with career day with increased focus on resume writing, interviewing, and job searching. **Implications & Conclusion:** The literature review and survey results identified and confirmed common themes for supplemental education. A gap remains between these results and what is currently provided. Recommendations for future program planning should focus on providing networking opportunities, support systems, exposure to unique areas of practice, and career preparation in an interactive and accessible forum. Delivery of these sessions may be outside of the scope of internship programs.

Exploring a relational cultural approach to nutrition counselling.

*K Tupta^{*1}, J Okafo², J Gingras². ¹ University Health Network, Toronto, Ontario, ²Ryerson University, Toronto, Ontario. [R].*

Objectives: Recovery rates for eating disturbances are low such that further research regarding treatment modalities is required. Relational Cultural Theory (RCT) offers an alternative approach to nutrition counselling for eating disturbances. The objectives of this study were: (1) to use the relational cultural framework to describe students' experiences of sub-clinical eating disturbances and their relationship with food and the body; (2) to explore how RCT works to strengthen these students' relationship with food and the body; and (3) to explore how RCT can support the work of novice nutrition and food professionals providing nutrition counselling to individuals struggling with eating and body image issues. **Methods:** Three university students participated in six individual nutrition counselling sessions guided by RCT, followed by debriefing interviews. The data was analyzed using the Voice-Centred Relational Method. **Results:** Students' relationships with food were affected by their relationships with important people in their lives as well as with the larger society and culture. Students strived for control over food when they felt disconnected from their relationships with people. In contrast, the feelings of connection resulted in decreased need for calorie control. Authenticity and mutual empathy in the relationship between the participants and the counselor translated into shifts in participants' relationships with food, the self and important people in their lives. **Implications & Conclusions:** In the context of nutrition counselling, RCT helps to explain eating disturbances in a larger social, relational, and cultural context. The mutual understanding of eating disturbances between the client and the counselor as described by RCT forms the basis for movement in the realm of behavioural change towards recovery from eating disturbances and may prevent development of eating disorders.

Healthcare practice with Middle Eastern migrants: a call for cultural competency

M Jessri^{1}, A P Farmer^{1,2}, K Olson³. ¹Human Nutrition Division; ²The Center for Health Promotion Studies; ³Faculty of Nursing; University of Alberta, Edmonton, AB [R].*

Objectives: Although the Middle Eastern population is the fastest growing immigrant group to influx Canada, the barriers to compliance with complementary feeding guidelines among this group from an emic perspective are not yet recognized. **Methods:** This study was a two-stage ethnographic assessment of infant feeding among 22 Middle Eastern mothers with infants aged less than one year in Edmonton, Canada. Qualitative data were collected in Arabic and Farsi through four focus groups and were complemented by survey data on infant feeding behaviour. **Results:** Mothers' main criterion for selecting infant foods was whether or not foods were Halal, while potential food allergens were not a concern. Vitamin D supplements were not fed to 18.2% of infants, and mashed dates (Halawi), rice pudding (Muhallabia/Ferni) and sugared water/tea were the first foods commonly consumed in infants under 2 months. Through constant comparison, three layers of influence emerged which described mothers' process of infant feeding: sociocultural, healthcare system and personal factors. Culture was an umbrella theme influencing all aspects of infant feeding decisions. Mothers' perception of healthcare professionals' lack of cultural competency and provision of practical infant feeding guidelines were the main cited reasons for their ignorance of infant feeding recommendations. **Implications & Conclusions:** Early introduction of prelacteal feeds and improper types of foods fed to infants by immigrant/refugee Middle Eastern mothers in Canada may be causes for concern for public health practitioners. Involving trained language interpreters in health teams and providing healthcare staff cultural competency training may increase maternal trust of the healthcare system and eventually lead to increased alignment of infant feeding practices with the recommendations.

Financial Support: This study was supported by a research grant from “**Women and Children’s Health Research Institute (WCHRI)**”, through the funds of “**Stollery Children’s Hospital Foundation**”; **Alberta, Canada. M.J.** is funded by “2011 Dr. Elizabeth A. Donald M.Sc. Fellowship in Human Nutrition” and “Professional Development Grant” from the “University of Alberta Graduate Students' Association”.

Food and cooking knowledge and skills: perceptions of undergraduate dietetic students

*MJ Cooper^{*1}, L Mezzabotta², MS Waisman³, J Murphy², Nutrition Research Division, Health Canada, Ottawa¹, Ontario, The Ottawa Hospital, Ottawa, Ontario², All About Food Nutrition Consulting, Halifax, Nova Scotia³ [R]*

Objectives: In recent years, dietetic practice has become more science-based, deemphasizing food and cooking skills. Due to minimal research examining food and cooking skills and knowledge in dietetics, the current study explored this topic with dietetic students at the University of Ottawa. **Methods:** An online bilingual survey was created using Survey Monkey™ to explore the skills, knowledge and perceptions regarding food and cooking in undergraduate students. Nutrition students were recruited via email and through non-elective classes. Chi-square and logistic regression analyses were used to compare knowledge and skills of food and cooking concepts. **Results:** A response rate of 53% was obtained (58 of 110 students), although the final sample included only 2nd (n=22) and 3rd year (n=22) students. Although there were no significant differences ($p>0.05$) on 3 of 4 skills (preparing a cake, whipped egg whites, or yeast bread by themselves) among 2nd and 3rd year students, 3rd year students noted more skill in preparing a béchamel sauce by themselves. There were no significant differences in knowledge concepts (fold, baste, braise, grill and poach) among 2nd and 3rd year students ($p>0.05$). There was a trend for 3rd year students (30.0%) to have a greater perception of both their skills and knowledge as compared to 2nd year students (16%). **Implications and Conclusions:** Perceived knowledge and confidence was proportional with the academic year, while overall knowledge and skills of food and culinary concepts were moderate among both groups. Understanding food and cooking knowledge and skills of nutrition students is important for informing undergraduate curriculum with regard to these competencies.

Unlearning food and nutrition: a retrospective autoethnography

A Fitzpatrick^{1}. ¹Sunnybrook Health Sciences Centre, Toronto, Ontario. [R]*

Objective: As a DC-accredited Nutrition and Food program graduate, I have been socialized to discount food in academic enquiry, while favouring more scientific ways of knowing. But by separating food from nutrition pedagogy, dietetic students enter practice feeling ill-prepared to satisfy their client's practical food questions. Thus, despite its origins in Home Economics, the dietetic profession and education model has built its scientific legitimacy on a reduction of food to calories, nutrients and portions. This approach disregards food's social, cultural and sensual dimensions, and leads to irrelevant and ill-understood nutrition interventions. This paper is a retrospective review of my personal journey in learning to un-learn my passion for food as a future dietitian. **Methods:** Using autoethnography (Ellis, 2004) I explore the process of becoming a dietitian within the context of dietetic educational culture. I review the history of dietetics with its roots in Home Economics and its slow progression from a discourse of nurturance to isolated nutrients. **Results:** I argue that while the profession's reductionist biomedical philosophy has helped solidify women's place within the medical hierarchy, it has failed to promote the health of our clients. Through neglecting the social and cultural qualities of food, this approach to practice risks disrupting a client's subjective identities. It also serves to hinder professional trust and rapport as its emphasis on abstract scientific knowledge places the nutrition professional in a position of power relative to the embodied food knowledge of their client. Finally, through reducing foods to confusing and irrelevant constructs, the layperson may begin to perceive eating-well as an insurmountable task to attempt. **Implications & Conclusions:** I conclude with anecdotal stories and suggestions for why and how nutrition professionals should reclaim their roles in food expertise.

Development and content validation of nutrition knowledge questionnaires for parents of toddlers and preschoolers

C Mazariegos, L Rysdale, J Randall Simpson. Department of Family Relations and Applied Nutrition, University of Guelph, Guelph, ON. [R]*

Objectives: There is a need for valid and reliable nutrition knowledge questionnaires to evaluate parent knowledge post screening with NutriSTEP® (Nutrition Screening Tool for Every Preschooler) and Toddler NutriSTEP®. Study objectives included the development and content validation of two knowledge questionnaires for parents using the method described by Parmenter et al, 2000. **Methods:** Based on the four toddler (18-35 months) and preschooler (3-5 years) nutrition risk attributes: 1) food and fluid intake; 2) physical growth/weight concern; 3) physical activity and screen time; and, 4) factors affecting food intake such as food security, feeding environment, developmental milestones, etc., 36 and 45 items were developed for the preschooler and toddler questionnaire versions, respectively. A nationally representative sample of pediatric dietitians (n=13) were invited to participate in the content validation of these questionnaires, evaluating their wording, comprehension, and congruence with the attributes. The questionnaires underwent two dietitian reviews, first through an online survey that was conducted in July 2011, and then through a conference call in August 2011 to reach consensus on any proposed revisions. **Results:** Thirteen dietitians participated in the first activity and nine in the second. The panel of dietitians had an average of 18 years of dietetic experience and 13 years in pediatrics. In winter 2012, construct validity testing will be performed with 40 undergraduate nutrition students, as well as reliability testing with 80 Ontario parents of toddlers and preschoolers. **Implications & Conclusions:** The availability of two valid and reliable knowledge questionnaires tailored to parents of toddlers and preschoolers will enhance the process and outcome evaluation of early years nutrition screening programs.

Designing and executing a media campaign to promote EatRight Ontario

C Mehling, C Cicco, H Haresign, EatRight Ontario, Dietitians of Canada, Toronto, Ontario.[E]*

Purpose: To increase awareness and utilization among Ontarians about EatRight Ontario, a multifaceted media campaign was piloted in the Kitchener Waterloo area during January – March 2012. EatRight Ontario (ERO) is a dietitian contact centre, funded by the Ontario government, to provide Ontarians with increased access to healthy eating advice from Registered Dietitians through a toll-free telephone line, email and public web site. The findings from the pilot campaign will inform planning for future media and promotional activities. **Process:** The media campaign was built around 5 topical nutrition themes, identified as popular questions at the call centre in order to attract the maximum number of people. The campaign was rolled out, in a staggered approach, over a 12 week period to include: postcards to local residents, multimedia exposure via news papers, TV, facebook, twitter and radio ads, and online media, promotional partnership with a national grocer and a contest. To evaluate the success of the campaign, contact volume was tracked, along with postal codes and how they heard about the service, topic of call, and other relevant call information. Staff were trained and updated on the media campaign. **Project Summary:** An increase in the number of calls and emails from Kitchener Waterloo area is occurring at the contact centre as the campaign rolls out. For the two month period prior to the campaign, there were 3.3 calls and emails per day from this area. During the first 26 days of the campaign this increased to 10.5 calls and emails per day. **Recommendations and Conclusions:** A multifaceted media campaign with frequent exposures to a targeted audience is an effective strategy to increase awareness and utilization of EatRight Ontario.

Who is taking vitamin D supplements; results from the Canadian Health Measures Survey

*LS Greene-Finestone^{*1}, KA Langlois², SJ Whiting³ ¹Public Health Agency of Canada, Ottawa, Ontario, ²Statistics Canada, Ottawa, Ontario ³University of Saskatchewan, Saskatoon, Saskatchewan. [R]*

Canadian vitamin D supplement users are more likely to have 25-hydroxyvitamin D (25(OH)D) levels consistent with meeting the Recommended Dietary Allowance, particularly with low UVB exposure during the winter. **Objectives:** To determine characteristics of these supplement users and examine the relationship between dosage and 25(OH)D. **Methods:** Using the 2007-2009 Canadian Health Measures Survey (CHMS, n=5604, ages 6-79 years), logistic regression models including socio-demographic, health and behaviour variables examined odds of supplement use within the previous 30 days. **Results:** 31% used vitamin D supplements; 58.5% of users were female. The odds of females' supplement use was lower for those 12–19 years (OR 0.63, 95% CI=0.41-0.96) and higher for those 60–79 years (OR

4.19, 95% CI=2.69 – 6.64), 40-59 years (OR 1.56, 95% CI=1.10-2.20), of higher income (OR 2.29 (95% CI =1.26 – 4.16) and middle income (OR 1.59, 95% CI=1.03-2.46), reporting ≥ 1 chronic diseases (1.48, 95% CI=1.06-2.06) and consuming ≥ 1 servings of milk/day (OR 1.35, 95% CI=1.14-1.60). For males, increased use was associated with age 60–79 years (OR 2.41, 95% CI = 1.54 – 3.77) and 6-11 years (OR 1.77, 95% CI=1.19 – 2.64), and higher (OR 2.12, 95% CI=1.49 – 3.00) and middle incomes (OR 1.55, 95% CI=1.04 – 2.31). Use did not vary significantly by race, education, season, BMI, health and physical activity. Plasma 25(OH)D increased with increasing supplement dosage ($r = 0.25$) but differences between 1–399 IU and 400–999 IU were not significant. **Implications & Conclusions:** Supplement users are more likely to be female, older, and of higher income. Usage/non-usage patterns are important considerations as ways of improving vitamin D intake are pursued.

Consumer attitudes towards a single, standardized front-of-pack nutrition rating system for Canada

*T Emrich*¹, M L'Abbe¹. ¹Department of Nutritional Sciences, University of Toronto, Toronto, ON [R].*

In the fall of 2011, the US Institute of Medicine recommended the adoption of a single, standardized front-of-pack nutrition rating system (FOPS) in place of an unregulated environment characterized by multiple, different FOPS. The Government of Canada recently announced that it does not intend to develop or implement a standardized FOPS for Canada. **Objective:** The purpose of this research was to explore the attitudes of Canadian consumers towards the use and regulation FOPS on food labels. **Methods:** An online survey was completed in the summer of 2011 by Canadian consumers aged 20-69 recruited by a professional recruiting firm. Participants responded to closed-ended questions about their attitudes towards FOPS. Data was weighted to reflect the Canadian population based on 2006 census data and analysis of response frequency was completed. **Results:** 3036 consumers responded to the survey. The majority of consumers (63.4% \pm 1.2) believed that FOPS should be used on all pre-packaged food products and that a single, regulated FOPS should be used by all manufacturers (77.0% \pm 1.0). In contrast, only 5.8% \pm 0.6 of consumers believed the use of FOPS should be at the discretion of manufacturers. Canadians preferred that FOPS be overseen by the government (45.2% \pm 1.2) or the non-profit sector (32.6% \pm 1.1) rather than by manufacturers (6.4% \pm 0.5) or industry groups (8.4% \pm 0.7). Over 80% of Canadians believed that fat, saturated fat, trans fat, sodium, and sugar were important nutrients to include on the front-of-pack. **Implications & Conclusions:** The results show that Canadians share the views of the Institute of Medicine related to the use of a single, standardized FOPS. These findings suggest that the Canadian government should revisit the issue of front-of-pack labelling in keeping with the attitudes of Canadians.

Evaluation of sodium levels in the Canadian food supply

*J Arcand,*¹ A Schermel,¹ M Lim,¹ M L'Abbe.¹ Department of Nutritional Sciences, University of Toronto, Toronto, Ontario. [R]*

A reduction in sodium in the food supply is an essential strategy to lowering Canadian population sodium intakes. However, the current progress of sodium levels in the food supply in relation to the proposed sodium targets by Health Canada is unknown. **Objective:** To determine the number of foods meeting the sodium reduction targets proposed by Health Canada, as well as the mean sodium levels and distribution of sodium levels in Canadian foods. **Methods:** Cross-sectional analysis using a database of ~11,000 packaged foods from top-selling Canadian grocery retailers, collected in 2010-11. We assessed foods contributing the largest amounts of sodium to the Canadian diet: breads, deli meats, frozen pasta dishes, canned vegetables, natural cheese, and soup. We calculated mean sodium levels and determined the proportion of foods meeting Health Canada's 2016 sodium target (mg/100g), and exceeding the maximum allowable level (mg). **Results:** We found 21% of breads (441 \pm 127 mg/100g sodium) met the target, and 22% exceeded the maximum. Fifty-percent (50%) of cheeses (610 \pm 282 mg/100g sodium) met the target and 28% exceeded the maximum. Deli meats contained 1082 \pm 380 mg/100g sodium, and 23% met the target and 36% exceeded the maximum. Frozen pasta entrees contained 623 \pm 70 mg/100g sodium, and 10% met the target and 10% exceeded the maximum. Nineteen percent of canned

vegetables (305±601 mg/100g sodium) met the target, and 44% exceeded the maximum. Eleven-percent (11%) of canned condensed soups (246±72 mg/100g) met the target and 47% exceeded the maximum. Ready-to-served canned soups contained an average 264±72 mg/100g, and 14% met the target and 45% exceeded the maximum. **Implications & Conclusions:** There is variability between product categories regarding the proportion of foods meeting the sodium targets. Bread, pasta entrees, canned vegetables and soups have the most progress to make. This data highlights the need for food manufacturers to continue sodium reduction efforts.

Unintended differences in nutritional composition and food prices between high and low sodium foods

J Arcand¹, T Toledo¹, A Schermerl¹, M Lim¹, M L'Abbe¹, Department of Nutritional Sciences, University of Toronto, Toronto, Ontario. [R]

Sodium reduction in the Canadian food supply requires reformulation of packaged food products. Reformulating foods to be lower in sodium may cause unintended changes in nutritional composition, although this is not been systematically evaluated. **Objective:** To determine if there are any differences in the nutritional composition and price between high and low sodium foods. **Methods:** Cross-sectional analysis using a database of ~11,000 packaged foods from top-selling Canadian grocery retailers, collected in 2010-11. We assessed pantry breads/rolls, ready-to-serve soups and frozen pasta entrees, which are food groups contributing high levels of sodium to the Canadian diet. “Lower” sodium foods were those that met the Health Canada sodium target, and “higher” sodium foods were those exceeding the target. **Results:** Lower sodium pantry breads/rolls (314±72mg/100g sodium, n=40), versus higher sodium breads/rolls (502±74mg/100g sodium, n=77), were higher in calories (+9±2kcal/100g, p=0.044), fat (+1.3g±0.6/100g, p=0.002), protein (+1.5±1g/100g, <0.001), and fibre (+2.8g±1.0/100g, p<0.001). Lower sodium breads tended to be higher in price (\$0.41±0.29/100g vs.\$0.49±0.29/100g, p=0.075). Lower sodium soups (169±38mg/100g sodium, n=57), compared to higher sodium soups (284±52mg/100g, n=118), were significantly lower in saturated fat (-2.0±0.5g/100g). There were no price differences between low and high sodium soups; however, soups with a “low sodium” claim (n=48) were significantly lower in price, compared to soups without a claim (n=127) (-\$0.09±0.17/100g, p<0.001). Lower sodium pasta entrees (195±18mg/100g sodium, n=55), compared to those higher sodium (299±56mg/100g sodium, n=103), were lower in calories (-22kcal/100g, p=0.002), fat (-1.4±0.9g/100g, p<0.001), saturated fat (-0.7±0.7g/100g, p=0.003), and fibre (-0.2±0.1mg/100g, p<0.049). There was no difference in price between lower and higher sodium frozen pasta entrees. **Implications & Conclusions:** We found both favourable and unfavourable differences in nutritional composition and food price between high and low sodium foods. Longitudinal evaluation and monitoring of these important characteristics should occur as changes to sodium levels in the foods supply occur.

“Apps” in dietetic practice: perceptions, needs and opportunities

*JRL Lieffers^{*1}, RM Hanning¹. ¹School of Public Health and Health Systems, University of Waterloo, Waterloo, Ontario. [R].*

Objectives: Mobile device applications (“apps”) are an emerging tool with several potential uses in dietetic practice (e.g., monitoring client dietary intake, helping dietitians complete tasks more efficiently). Our objective was to understand dietitian experiences with apps in practice to guide future research, development, and education with this tool. **Methods:** A survey was drafted to determine mobile device/app usage in dietetic practice, client use of nutrition/food apps, and ideas for future apps needed in dietetic practice. The survey was mounted on the SurveyMonkey™ website and underwent two rounds of pilot testing with Edmonton and Waterloo region dietitians/dietetic interns (n=17). The final survey encompassed 49 possible questions. Dietitians of Canada, a supporter of this research, promoted the survey to members through their e-newsletter. **Results:** Forty-two dietitians voluntarily completed the survey (73.0% were ≤34y). Of practising dietitians, 75.0% reported using a mobile device (60.0% used Smartphones) and 69.2% reported using apps in practice: organization and medical/drug reference apps

were most frequently used. Importantly, all respondents not currently using apps in practice were interested in future use. In addition, 56.8% reported having had a client ask about or use a nutrition/food app, however, only 40.5% have recommended them to clients. Many respondents were enthusiastic about using apps in practice, but unsure which ones to recommend. Concern was raised about credibility and limited Canadian content. Interestingly, 91.9% were interested in continuing education on apps in dietetic practice. **Implications & Conclusions:** Mobile device apps are beginning to be used in dietetic practice. However, apps that are credible and contain Canadian content are needed before they can be confidently recommended to clients. **Funding:** CIHR Doctoral Research Award.

Evaluating the Power to Play! program: what is the impact of nutrition education in primary classrooms?

L Magalhaes, H Boyd*. Dairy Farmers of Canada, Mississauga, Ontario. [R].*

Objectives: To inform our approach to program development and to advance nutrition education practices, we used a comprehensive evaluation to quantify students' learning outcomes, assess their knowledge retention, and determine teacher satisfaction with Power to Play!, a nutrition education program for primary students. **Methods:** To determine program effectiveness, students' knowledge of *Canada's Food Guide* and their ability to identify and plan balanced meals and snacks were measured using pre- and post-program tests. Classes participating in the program (treatment group = 287 students) were paired by grade level (within their own school) with classes not participating (control group = 260). To further assess the skills developed and nutrition knowledge retained, participating students were interviewed after program completion (n = 21). Teacher perspectives on program components, benefits, and learning outcomes were obtained through an online survey (n = 465) and interviews (n = 8). **Results:** The treatment group scored significantly better overall (90% confidence level) on the post-test than on the pretest, and significantly better than the control group on the post-test. Students in the treatment group could better classify foods into the food groups, build a balanced meal, and describe the benefits of eating healthily and being active, and demonstrated positive attitudes toward nutrition. Student interviews verified these results. Teacher satisfaction was high: 100% of respondents would recommend this resource to colleagues, and 92% and 91% rated their students' knowledge retention and level of engagement 4/5 or 5/5, respectively (scale of 1–5, 5 being the highest). **Implications & Conclusions:** Results show that Power to Play! has a significant measurable positive impact on students' knowledge of nutrition and healthy eating skills.

An evaluation of the cKinect-Ed nutrition and cooking education assembly

*S Woodruff*¹, S Richard², A Kirby¹, B Holash². ¹University of Windsor, Department of Kinesiology, Windsor, Ontario, ²Cooking for the Rushed, Inc, St. Catharines, Ontario. [R].*

Objectives: The purpose was to evaluate the cKinect-Ed nutrition and cooking education assembly aimed at motivating and educating children/adolescents to talk to their parents about helping out in the kitchen and to provide them (and their family) with a resource tool for healthy eating. **Methods:** 154 Grade 6-7 students from Windsor-Essex County completed a questionnaire two weeks after an assembly hosted by celebrity chef and international best-selling author, Sandi Richard. The hour-long motivational presentation included information and interactive demonstrations (e.g., volunteers from the audience help Richard demonstrate a particular concept) focusing mainly on the effects of consuming fat, sugar, and salt. Participants also received a resource booklet during the presentation which included family-friendly dinner recipes and some basic health/nutrition information in a language geared at young adolescents. **Results:** The student assembly was enjoyed by the majority of participants (e.g., 81.8% rated it at least a 4/5). Approximately 65% of the participants shared the booklet with their family and 13% cooked at least one recipe within 2 weeks of the assembly. Approximately 22% and 36% of participants reported they were involved in food preparation at least once a day or never, respectively. **Implications and Conclusions:** The cKinect-Ed program assembly was deemed successful as it was well enjoyed by the participants. Further, more young adolescents, than expected, followed-up with cooking one of the

family-friendly recipes and shared the resource booklet with their parents. Data also highlight the lack of food preparation among this age group.

Nutrition knowledge and practices of varsity coaches at a Canadian university

*K Danaher*¹, T Curley¹. ¹Acadia University, Wolfville, Nova Scotia. [R]*

Objectives: Coaches' nutrition knowledge and subsequent nutrition recommendations have an impact on athletes' health. This study's purpose was to determine Canadian varsity coaches' nutrition knowledge and their nutrition recommendation practices. In addition the present study sought to determine if a coaches' nutrition knowledge impacts whether he/she makes nutrition recommendations to his/her athletes. Coaches' accessibility to dietitians was also examined, in order to determine if and how dietitians can be incorporated into the Canadian varsity sport system. **Methods:** Coaches (n=5) completed a nutrition knowledge questionnaire and a semi-structured interview pertaining to their nutrition, hydration and supplementation recommendation practices. The semi structured interview also examined coaches' weight management recommendations to athletes and their experiences with athletes who exhibit disordered eating symptoms as well as accessibility of dietitians. Qualitative data was analyzed using thematic analysis. **Results:** Coaches had low nutrition knowledge and all coaches made nutrition recommendations to their athletes. Coaches made recommendations in hydration, supplementation and weight management sections that were potentially detrimental to the health of athletes. In addition, recommendations in the hydration, training diet, pre-competition, recovery, supplementation, and weight management sections had potentially negative performance consequences to the athlete. **Implications and Conclusions:** This research represents the first assessment of Canadian varsity coach nutrition knowledge and practices, to the best of our knowledge. Findings suggest dietetic involvement in Canadian varsity athletics is crucial. Roles outlined for dietitians include team presentations, handouts on popular nutrition issues, one-on-one meetings with athletes and coaches who have specific concerns, policy development, advocating on the behalf of athletes with disordered eating symptoms, and interacting with meal hall staff to improve food services to athletes.

Formative evaluation of a university peer nutrition education program: a population health approach

*E Quenneville*¹, PDN Dworatzek¹, J Matthews¹. ¹Brescia University College at Western University, London, Ontario. [R]*

Objectives: The purpose of this qualitative study was to explore university students' attitudes, opinions, and expectations about a peer nutrition education program, as well as their interest in population health strategies such as information dissemination, skill-building, and advocacy to influence policy and promote change in the campus food and nutrition environment. **Methods:** Taking a pragmatic approach, the researchers conducted a formative evaluation of a peer nutrition education program plan previously developed by and for university students. A semi-structured interview guide allowed researchers to obtain answers to specific questions about the proposed program (e.g., logistics, messaging, incentives), and provided participants with an opportunity to brainstorm collectively about their expectations. Twenty-two first-year university students, living in residence and paying into a meal plan, participated in five focus groups. Data were transcribed verbatim, coded line-by-line, and analyzed using content analysis. **Results:** Students recognized the need for a university-wide nutrition education program and provided feedback and input on four strategies: increasing awareness, building skills, enhancing the food and nutrition environment, and advertising the program. Their main expectation was for the program to have a strong presence on campus. **Implications & Conclusions:** This research supports the creation of a university peer nutrition education program tailored to students and provides detailed information about the strategies that students would value and utilize. Peer-to-peer nutrition education programs in post-secondary institutions have the potential to positively affect the health of many young adults as they transition to independent living. Given that eating behaviours formed at this age may persist into adulthood, affecting not only students' future health, but also that of their children, this constitutes a significant issue in public health.

Strengthening capacity in a new nutrition program in Ethiopia through experiential service learning initiatives

DA Walker, CJ Henry, SJ Whiting, GA Zello. College of Pharmacy and Nutrition, University of Saskatchewan, Saskatoon, Saskatchewan. [E]*

Purpose: To strengthen the undergraduate nutrition program at Hawassa University (HU) through experiential service learning and contribute to internationalization activities at the University of Saskatchewan (U of S). **Process:** Currently, the HU program is didactic and lecture-based; thus, experiential service learning was identified as a way to introduce students to practical aspects of the nutrition field, foster skill development, and help prepare them for employment. Expertise on establishing service learning within the HU curriculum was garnered from the U of S nutrition team. Nutrition faculty from U of S have been involved in the ongoing evolution of both the undergraduate and graduate nutrition programs at HU since 2006, and faculty continue to travel to Ethiopia annually to teach in the Masters in Applied Human Nutrition (MAHN) program, conduct research, and advise on curriculum development. **Project Summary:** Students in the MAHN program were asked to identify potential partners for experiential service learning. Personnel from U of S and HU then met with several community-based organizations (UNICEF, World Vision) and health facilities (rural clinics, local hospitals) to identify and evaluate possible partnerships. Experiential service learning activities were identified with partners and have since been implemented in the undergraduate program as a pilot project. **Recommendations & Conclusions:** As Ethiopia has a population of about 80 million, and food insecurity affects approximately 35% of the population, particularly those living in rural areas, the success of Ethiopia's only university-based comprehensive nutrition program is vital. Implementing experiential service learning is an important step in preparing HU's nutrition graduates to help tackle the country's widespread problems of malnutrition and food insecurity.

Strategies for implementing nutritional and physical activity interventions to improve gestational weight gain management

R Walji¹, O Wahoush², and S Atkinson¹, Departments of ¹Pediatrics, ²Nursing, Faculty of Health Sciences, McMaster University, Hamilton, Ontario [R]*

Objectives: Excess gestational weight gain (GWG) in pregnancy is a major clinical challenge affecting 55-75% of Canadian women who enter pregnancy overweight and 40% women of normal weight. The adverse health outcomes of excess GWG for both mother and child are well documented. The larger research program aims to conduct a randomized trial with a diet and exercise intervention for optimizing GWG. This project is a preliminary phase in order to determine feasibility and patient preferences to the proposed intervention. Primary research question: What do pregnant/recently pregnant women and health providers identify as enablers or barriers that support or limit diet and exercise modification? **Methods:** This project uses a qualitative approach employing focus groups and interviews of pregnant or recently pregnant women (n=21) and health care providers (n=7) that aims to identify the preferred evidence-based strategies for women to effectively manage their GWG during and after pregnancy and how best to implement the selected intervention. **Results:** Specific barriers and facilitators were identified for making nutrition and exercise interventions more accessible to women of various backgrounds including: specific dietary advice and social support for physical activity. Key barriers were identified including: communication with healthcare providers, interprofessional collaboration, language, knowledge translation and lack of specific instructions in currently available guidelines. **Implications and Conclusions:** Collectively, information from women and health providers enabled a comprehensive understanding of barriers, enablers and opportunities for the successful implementation of an intervention for GWG management including providing education, social support, family involvement and facilitating communication with and between health providers.